Table VIII-6. Estimates of Mangers' and Employees' Time To Comply with Various Provisions of the Final Rule and Comparisons with the Estimates of Time Needed for these Activities for the Proposed Rule

Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	
Cost to provide employee information (initial requirement)		All establishments in general industry*	Establishments with basic programs (i.e., all with manual handling or manufacturing jobs); otherwise, only if MSD occurs	1 hour per employee plus 1 hour managerial time	0.5 hour per employee plus 0.5 hour managerial time	Manager

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Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	
Cost to investigate whether an MSD or persistent signs or symptoms are covered by the standard and determine whether MSD incidents occurred in job that meets the screen	Cost to investigate whether an MSD or persistent symptoms are covered by the standard for all establishments with manual handling and manufacturing jobs; cost to investigate whether an MSD is covered by the standard for all general industry establishments)	All establishments in general industry where there is a report of an MSD or persistent signs and symptoms	All establishments where persistent symptoms or an MSD occurs in manufacturing or manual handling establishments; otherwise, only where an MSD occurs	0.25 hour of managerial time and 0.25 hour of employee time to process each MSD report; 1.75 hours of managerial time to analyze whether MSD is an MSD incident and apply the screen to the job	0.25 hour of managerial time and 0.25 hour of employee time to process each MSD report	Manager

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Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	
Cost to designate responsible manager, review reporting polices, provide managerial training and information in establishments with full program or using quick fix (standard does not require managerial training for quick fix, but analysis assumes this activity necessary for costing purposes)		All establishments with jobs meeting two-part action trigger *	If persistent symptoms or an MSD occurs in manufacturing or manual handling establishments; otherwise, only where an MSD occurs*	24 hours of managerial time	16 hours of managerial time	Manager
Cost to train employees in establishments with full programs		All employees in jobs that have met the two-part action trigger*	All employees in problem jobs in establishments*	3 hours of employee time per affected employee, 3 hours of managerial time per problem job to provide training; 25 percent of employers able to use quick fix option and these do not need to conduct employee training.	1 hour of employee time per affected employee, 2 hours of managerial time per problem job to provide training; 25 percent of employers able to use quick fix option and these do not need to conduct employee training.	Manager with training required for the full program

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Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	
Cost of job hazard analysis (standard does not require job hazard analysis for quick fix, but analysis assumes job hazard analysis necessary for costing purposes)		All establishments with jobs that have met the two part action trigger*	All establishments with problem jobs*	1 hour of managerial time plus 1 hour employee time per problem job		Manager with full program training
Cost to evaluate and implement job controls (standard does not require full evaluation of job controls for quick fix, but analysis assumes evaluation necessary for costing purposes)		All establishments with jobs that have met the screen and been determined to have MSD hazards*	All establishments with problem jobs*	2-16 hours of employee and 2-32 hours of managerial time, depending on problem job; in 15 percent of cases, $2,000 for consulting ergonomist's time is assumed to be required		In 85 percent of cases, manager with full program training; in 15 percent of cases, consultant ergonomist.

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Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	Corresponding Proposed Provision	Final Rule	Corresponding Proposed Provision	Final Rule	Corresponding Proposed Provision	
Cost to administer MSD management (without WRP costs)		All establishments with jobs that have met the action trigger*	All establishments with problem jobs*	1 hour of managerial time; 2 hr worker's time; $130 for HCP's time for the 15.5% of MSDs where no HCP is currently provided; 20% of all cases involving a second opinion; 5% of all cases involving a third opinion	1 hour of managerial time; 2 hr worker's time per MSD	Manager with full program training, health care professional, or safety and health professional
Cost to do recordkeeping		All establishments with 11 or more employees must keep records if there is an employee report of an MSD or MSD signs and symptoms*	All establishments with 10 or more employees must keep records if there is an employee report of an MSD or MSD signs and symptoms*	0.5 hour of supervisory time per MSD	0.25 hour of supervisory time per MSD	Supervisor

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Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	Corresponding Proposed Provision	Final Rule	Corresponding Proposed Provision	Final Rule	Corresponding Proposed Provision	
Cost to conduct program evaluation		All establishments with full programs*		4 hours of managerial time in the three years following discover of job meeting two part action trigger. For 25 percent of problem jobs able to use quick fix option, no program evaluation is conducted.		Manager with full program training
Cost to implement job controls--engineering, work practice, or administrative controls		All establishments with jobs that meet the action trigger and are determined to have MSD hazards*	All establishments with problem jobs*	Costs per job intervention per affected employee vary by industry and occupational group and are presented in detail in Chapter V of Final Economic Analysis (affected employees include the employee incurring the MSD incident in a job meeting the screen and found to have MSD hazards and all other employees in the establishment with the same job)	Costs per job intervention per affected employee vary by industry and occupational groups and are presented in detail in Tables V-9 to V-13 of Preliminary Economic Analysis (affected employees include the employee incurring the MSD and all other employees in the establishment with the same job)	Covered under costs calculated for evaluating and implementing controls (above)

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Provision		When Required		Hours or Costs Involved		Level of Staff or Expertise Required (Both proposed and final rules)
Final Rule	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	**Final Rule**	**Corresponding Proposed Provision**	
Cost to provide work restriction protection		All establishments with jobs meeting the two-part action trigger (but MSD management costs only for incurred injured employees)*	All establishments with problem jobs*	$944 per MSD for work restriction protection, plus $104 per case (11%) for administrative costs to employer	$923 per MSD	Manager
Employee involvement, in addition to employee involvement as part of training, job hazard analysis, and implementing job controls		All establishments with jobs that meet the action trigger, where quick fix option is not used *	Establishments with basic programs: i.e. all with manual handling or manufacturing jobs; otherwise, only if MSD occurs*	4 hours initially when full program begins, 2 hours annually, 2 hours for program evaluation	Not costed	Nonsupervisory employee(s)

*Except for costs to review the standard to determine whether an existing program qualifies for grandfather status, OSHA's analysis assumes that programs are grandfathered in will not incur costs to implement an ergonomics program (since they already have programs), except costs for work restriction protection and multiple HCP review.

5. Steps the Agency has taken to minimize the significant economic impact on small entities. The final standard contains many elements that will reduce burden on small entities as compared with the proposal. The scope of the standard is simplified. All employers must provide basic information to employees, and there are no special obligations for employers with employees engaged in manufacturing or manual handling operations. Employers will need less time and effort to determine how they are affected by the scope of the rule. In the appendices to the standard, OSHA has provided material that employers can use to meet this requirement, further reducing the burden of the rule. The Agency has also kept an MSD trigger mechanism, and has added a screen. Employers do not need to do anything beyond provide information to employees unless an MSD incident in a job that meets the screen. The addition of the screen serves both to simplify decisionmaking for small employers and to target the rule toward high risk jobs. For employees in jobs meeting the action trigger, employers must provide a quick fix or initiate an ergonomics program. In addition, the employer need not control the job unless MSD hazards are found during the job hazard analysis. Employers may meet their job hazard analysis and control obligations in any one of a variety of ways. The addition of clearer compliance endpoints will reduce employer uncertainty about whether they are in compliance with the rule. Finally, an employer can cease having a program at any time the risks in the job are lowered so that the job no longer meets the screen.

Establishments with fewer than 11 employees do not have to keep records. Where a job hazard analysis or job controls are necessary, employers do not have to hire a professional ergonomic consultant. The Agency will also supply compliance guides for small businesses and a Web-based expert system to guide employers through the applicability of the final standard. The Agency has provided flexibility in choosing controls to reduce MSD hazards, including administrative controls along with engineering and work-practice controls. Finally, the Agency is permitting existing ergonomic programs to be grandfathered and considered in compliance with the standard as long as the existing program meets the requirements in paragraph (c).

The principal reasons that the Agency has made its revisions for the final standard are to make the final standard less costly, more cost-effective, and still achieve the goal of employee protection. These revisions will help all employers, including small employers.

Alternatives to the Proposed Standard

In the Final Regulatory Flexibility Analysis, OSHA considered alternatives with respect to voluntary action, alternative scope provisions, alternative trigger provisions, alternative work restriction protection provisions and other approaches to the rule making such as exempting small or low hazard employers. SBA's Office of Advocacy (Ex. 601–X–1) urged OSHA to consider exempting low hazard industries, and exempting small firms from WRP. OSHA believes that the new two part action trigger is a superior means of focusing the rule's obligation on high hazard work situations, while maintaining employee protection. The action trigger serves to assure that employers do not need to try to fix low hazard jobs. Further, this approach does this in a way that assures that even small firms in high hazard industries will not need to fix their low hazard jobs, while workers in the occasional high hazard job in a low hazard industry receive the protection they need. Exempting small businesses from WRP would remove needed protections for employees in small businesses. The Agency's analysis found that those alternatives that significantly alleviated the impact on small businesses more than OSHA's final standard did not provide adequate protection to worker health and safety. Many of the alternatives to specific provisions, such as WRP, are also discussed in the Preamble in the sections describing these provisions.

IX. Unfunded Mandates

OSHA reviewed the final ergonomics program standard in accordance with the Unfunded Mandates Reform Act of 1995 (UMRA) (2 U.S.C. 1501 et seq.). As discussed above in the Summary of the Final Economic Analysis (Section VIII of the preamble), OSHA estimates that compliance with the final ergonomics program standard will require the expenditure of approximately $4.0 billion each year by employers in the private sector. Therefore, the final ergonomics program standard establishes a federal private sector mandate and is a significant regulatory action, within the meaning of Section 202 of UMRA (2 U.S.C. 1532). OSHA has included this statement to address the anticipated effects of the final ergonomics program standard pursuant to Section 202.

OSHA standards do not apply to state and local governments, except in states that have voluntarily elected to adopt an OSHA State Plan. Consequently, the final standard does not meet the definition of a ''Federal intergovernmental mandate'' (Section 421(5) of UMRA (2 U.S.C. 658(5)).

This final rule was proposed under Section 6(b) of the OSH Act. The final ergonomic program standard will prevent 4.6 million MSDs over the next 10 years. The final ergonomics program standard will lead to $558 million per year in costs on state, local or tribal governments. OSHA pays 50 percent of State plan costs but does not provide funding for state, local or tribal governments to comply with its rules.

OSHA does not anticipate any disproportionate budgetary effects upon any particular region of the nation or particular state, local, or tribal governments, or urban or rural or other types of communities. Chapters V and VI of the economic analysis provide detailed analyses of the costs and impacts of the final rule on particular segments of the private sector. OSHA has analyzed the economic impacts of the rule on the affected industries and found that compliance costs are, on average, only 0.05 percent of sales, and that few, if any, facility closures or job losses are anticipated in the affected industries. As a result, impacts on the national economy would be too small to be measurable by economic models.

The anticipated benefits and costs of this final standard are addressed in the Summary of the Final Economic Analysis (Section VIII of this preamble), above, and in the Final Economic Analysis (Ex. 900). In addition, pursuant to Section 205 of the UMRA (2 U.S.C. 1535), having considered a reasonable number of alternatives as outlined in this preamble and in the economic analysis (Ex. 900), the Agency has concluded that the final standard is the most cost-effective alternative for implementation of OSHA's statutory objective of substantially reducing or eliminating a significant risk of material impairment. This is discussed at length in the economic analysis (Ex. 900) and in the Summary and Explanation (Section IV of this preamble) for the various provisions of the final ergonomics program standard.

X. Environmental Impact Statement

Pursuant to the National Environmental Policy Act, the Department of Labor has issued regulations to determine when an environmental impact statement is required in a rulemaking proceeding. Section 29 CFR § 11.10(a)(3) states:

Preparation of an environmental impact statement will always be required for

proposals for promulgation, modification or revocation of health standards which will significantly affect air, water, soil quality, plant or animal life, the use of land and other aspects of the human environment.

In the preamble to the proposed rule, the Agency stated that no environmental impact statement would be required for this rule because it does not meet the criteria set forth in 29 CFR § 11.10(a)(3), as stated above. OSHA received one comment disagreeing with this determination. The commenter (Ex. 500–221) suggested that employer compliance activities associated with the proposed Ergonomics Program Standard would have the potential to cause enormous environmental impacts. The commenter also suggested that the proposed standard would increase the demand for electricity by encouraging workplace automation; increase the consumption of natural resources by encouraging employers to use greater numbers of smaller product containers; and impair air quality by encouraging delivery vehicles to remain at idle while employees manually move smaller loads per trip. Finally, the commenter asserted that the proposed standard would encourage automation of trash collection and waste disposal operations, and would discourage recycling.

OSHA notes that the final standard requires employers to control problem jobs by modifying the conditions under which the work is performed, including such changes as workstation modification, redesign of tools, and job rotation. The final standard also requires employers to develop ergonomic programs that involve such elements as assessment of problem jobs, modification of jobs to reduce MSD hazards, employee training, and MSD management.

Ergonomics-related job modifications typically result in greater production efficiencies without the need for additional natural resources or the increased discharge of pollutants. As several ergonomists testified at the hearings (David Alexander, Tr. Pp 2142–53, 2369–72 and Dennis Mitchell, Tr. Pp 2366–68) ergonomic modifications typically involve mechanization (*e.g.* the use of carts, shelves, adjustable workstations, etc.) and only rarely involve automation (the replacement of people by machines.) Automation is a rarely-used approach unless the employer considers that process efficiency will be improved. The likelihood is that updated, more energy-efficient production equipment will actually lead to a decrease, not an increase, in energy consumption. In the trash collection and recycling industries, automation and mechanization are increasing because of factors that long predate issuance of this final rule. Mechanization and automation in those industries are likely to produce greater efficiencies and lower costs as well as reducing the risks and costs of employee injuries. OSHA disagrees with the commenter's assertion that recycling would be abandoned on a large scale as a result of OSHA's standard on ergonomics programs; by necessity or law, most local jurisdictions in the U.S. have now committed themselves to recycling.

OSHA believes the claims of adverse environmental effects asserted by the commenter are highly speculative, and fail to make a plausible case that the final Ergonomics Program Standard will significantly affect the human environment. Moreover, none of the impacts predicted by the commenter takes into account any of the environmental benefits that might result from ergonomics-related job modifications, such as productivity increases and waste reduction. Accordingly, OSHA concludes that the final rule will not result in significant environmental impacts and, therefore, an environmental impact statement is not required.

XI. Additional Statutory Issues

1. Fair Notice

Numerous commenters contend that various terms used in the proposed standard are unduly vague and fail to provide fair notice of what the standard requires. For example, the American Iron & Steel Institute asserts that the proposal ''is not written in language that can reasonably be understood by those who must comply with it.'' Ex. 32–206–1. Morgan, Lewis & Bockius believes that several provisions of the proposal ''are unworkably vague in their current state.'' Ex. 30–4467 at p. 6. Organization Resources Counselors, Inc. (ORC) states that the proposal contains an ''excess of complex terms and definitions.'' Ex. 32–78–1 at p. 5. Similar objections were raised by the Edison Electric Institute (Ex. 32–300–1 at p. 6); the Integrated Waste Service Association (Ex. 22–337–1 at p. 8); the National Coalition on Ergonomics (Ex. 32–368–1 at pp. 126–29); the Chamber of Commerce (Ex. 30–1722 at pp. 24–25 & Ex. 500–188 at pp. 66–69); the Forum for a Responsible Ergonomics Standard (Ex. 30–3845 at pp. 26–29); and numerous others. Among the phrases in the proposal the commenters assert were overly vague are ''eliminate or materially reduce the MSD hazards;'' ''significant amount of the employee's worktime;'' ''repeated exposure;'' ''core element;'' ''no cost to employee;'' ''employer commitment;'' ''employee participation;'' ''ergonomic hazard;'' ''persistent MSD symptoms;'' ''forceful lifting/lowering;'' ''problem job;'' ''common sense determination;'' ''ergonomic risk factors;'' ''OSHA recordable MSD;'' ''reasonably likely to cause or contribute to the type of MSD reported;'' ''cold temperatures;'' ''dynamic motion;'' ''awkward posture;'' ''static posture;'' and ''reduce to the extent feasible.'' E.g., Ex. 32–368–1 at p. 126 & Ex. 500–197 at pp. III–3–18 (NCE); Ex. 32–206–1 at pp. 13–14 (American Iron & Steel Institute); Ex. 32–241–4 at pp. 166–80 (Anheuser-Busch and United Parcel Service).

Some of the same commenters, as well as others, object to what they characterize as the proposal's ''one size fits all'' approach. *E.g.,* Ex. 30–3845 at p. 37 (Forum for a Responsible Ergonomics Standard); Ex. 32–368–1 at p. 72 (NCE); Ex. 30–3077 at p. 1 (National Tooling and Machining Association); Ex. 30–2993 at p. 2 (Small Business Legislative Council). They believe it is inadvisable for OSHA to issue a standard that applies to a wide variety of different industries because conditions pertinent to ergonomics vary widely among industries.

The reason OSHA included general language, such as the phrases the commenters contend are too vague, in the proposed standard was to avoid the very ''one size fits all'' approach to which some of the same commenters and many others object. Because of the numerous variables that can result in work-related MSDs, OSHA drafted the proposed rule in flexible, performance-oriented language to enable employers to develop ergonomics programs tailored to their workplaces, rather than attempting to prescribe, for example, the specific manner in which employers should control an MSD hazard. As a result, the proposal used a number of general phrases to allow employers the maximum amount of flexibility consistent with the standard's goal of reducing MSDs.

In response to the numerous comments that criticized the proposed standard as being unduly vague, OSHA has made a number of changes to the final standard that are designed to give additional guidance as to what the standard requires of employers. Some of the complaints most frequently voiced in the comments—that employer obligations are not defined with sufficient clarity—are addressed by (1) changing the scope of the standard to no longer require employers to determine whether their employees are engaged in ''manual handling'' or manufacturing;

(2) including an objective Action Trigger for determining whether an employer must fix a job in which an employee has reported a MSD incident; and (3) establishing compliance endpoints that will enable employers to tell with certainty whether they have taken sufficient steps to fix a problem job. As a result of these changes, certain phrases that commenters claimed were too vague, such as ''significant amount of the employee's worktime,'' ''core element of the job,'' and ''forceful lifting/lowering'' are no longer used. The changes to the final rule, and the reasons for them, are discussed in the Summary and Explanation section of this preamble. Although the final rule contains greater specificity than the proposal, OSHA believes that the final rule still gives employers sufficient flexibility to develop ergonomics programs that are suited to the particular characteristics of their workplaces.

OSHA believes that this final rule provides fair notice to employers of their obligations. On its face, it provides persons of ordinary intelligence a reasonable opportunity to understand the conduct it prohibits or requires. See *Hill* v. *Colorado*, 120 S.Ct 2480, 2498 (2000). Moreover, in addition to the language of the standard and the further guidance provided by this preamble, other sources will be available to help employers determine their compliance obligations. OSHA intends to make compliance assistance conveniently available to the public, both through its website (*www.osha.gov*) and through printed publications. Among the compliance assistance materials will be a small entity compliance guide, as required by the Small Business Regulatory Enforcement Fairness Act of 1996, specifically designed to inform small businesses of their obligations under the rule in language that is readily understandable. Employers and employees will also be able to look to guidelines that have proven successful in averting MSDs in specific industries, such as the red meat guidelines. Ex. 2–13. OSHA-funded consultation services through state agencies will be available to qualifying employers who request it. And personnel in OSHA's national and field offices will be available to answer questions about the standard. OSHA also encourages trade associations and other business organizations to disseminate information, such as case studies of successful ergonomic interventions by employers in their industries, that will help facilitate compliance with the standard by their members.

2. OSHA's Past Enforcement Efforts

In the NPRM, OSHA noted that it had gained experience over the years in addressing ergonomic issues through a variety of means, including enforcement, consultation, training and education, compliance assistance, the Voluntary Protection Programs, and issuance of voluntary guidelines. 64 FR at 65774. In the area of enforcement, the agency had successfully issued over 550 ergonomics citations under the OSH Act's General Duty Clause, section 5(a)(1). *Id.* Almost all of these citations, the agency observed, had led to the implementation of ergonomics programs by the cited employers, included some corporate-wide programs developed pursuant to settlement agreements. *Id.*

The Chamber of Commerce criticizes OSHA for not mentioning cases where, in the Chamber's words, OSHA's enforcement efforts ''abjectly failed.'' Ex. 30–1722 at p. 7. The Chamber states that OSHA lost the ''only three enforcement actions that were actually tried to completion,'' citing Pepperidge Farm, 17 O.S.H. Cas. (BNA) 1993 (Rev. Comm'n, 1997); Dayton Tire, Division of Bridgestone/Firestone, Inc., 1998 WL 99288 (ALJ, 1998); and Beverly Enters., 1994 WL 693958 (ALJ, 1995), review directed (Nov. 9, 1995), decided by the Commission (Oct. 27, 2000). Ex. 30–1722 at pp. 7–8. See also Ex. 500–197 at Ex. III–C, E. Scalia, OSHA's Ergonomics Litigation Record Three Strikes and It's Out, cato inst. No. 391. These cases, the Chamber contends, ''demonstrate the futility of promulgating a mandatory ergonomics program standard, and underscore OSHA's failure to understand the state of the scientific evidence and its legal authority.'' Ex. 30–1722 at p. 10. Similarly, the NCE asserts that litigation of ergonomics citations under the general duty clause demonstrates OSHA's inability to garner sufficient scientific evidence to support an ergonomics rule. Ex. 32–368–1 at p. 14.

Contrary to the Chamber's contentions, OSHA has not ''lost'' the only three ergonomics cases tried to completion. In the case of Beverly Enters., the ''loss'' to which the Chamber refers was an adverse administrative law judge's decision that was under review by the Commission when the Chamber submitted its comments. The Commission has since, in a decision issued on October 27, 2000, reversed the administrative law judge's decision and held that the company's practices for lifting patients in its nursing homes exposed its nursing assistants to a serious recognized hazard. The Commission decision in Pepperidge Farm held that the company's employees were exposed to recognized lifting and repetitive motion hazards. In Dayton Tire, OSHA received an adverse decision from the administrative law judge and decided the case did not present a proper vehicle for appeal. The final order in Dayton Tire is therefore an unreviewed administrative law judge's decision and lacks precedential value. United States v. Sturm, Ruger & Co., 84 F.3d 1, 5 n. 4 (1st Cir.1996); Matter of Establishment Inspection of Cerro Copper Prods. Co., 752 F.2d 280, 284 (7th Cir. 1985); Leone Constr., 3 O.S.H. Cas. (BNA) 1979, 1981 (Rev. Comm'n 1976).

The Chamber contends that the ''unfavorable'' decisions in these three cases undermine the scientific basis for ergonomics regulation and hence for this rule. To the contrary, OSHA believes that the decisions in Beverly and Pepperidge Farm support both the need for and the scientific basis of this rule. They demonstrate that, even under the heavy burden of proof OSHA bears in general duty clause litigation, the preponderance of the credible evidence shows that workplace exposures cause MSDs, that employers recognize this, and that serious injuries result from these exposures.

The Chamber also cites testimony of OSHA witnesses in these cases, along with deposition testimony from Hudson Foods, a case that was ultimately settled, to attempt to show that experts engaged by OSHA cannot state with certainty the degree of risk caused by exposure to different levels of ergonomic stressors (Ex. 30–1722 at pp. 26–27, 47); that OSHA compliance officers are unqualified to evaluate the health risk from ergonomic stressors (Ex. 30–1722 at pp. 28, 64); that experts are unable to define with precision terms such as ''awkward posture,'' ''high force,'' and ''long periods of standing'' (Ex. 30–1722 at pp. 64–69); that two OSHA expert witnesses in Dayton Tire did not offer consistent definitions of the stressors in certain jobs (Ex. 30–1722 at p. 69); and that OSHA experts were unable to testify to the effectiveness of abatement measures (Ex. 30–1722 at pp. 72–73).

The Chamber's reliance on selected testimony in these cases does not undermine the scientific basis for this final rule. First, as the Commission decisions in Beverly and Pepperidge Farm show, the evidence in those cases supports OSHA's decision to address ergonomic hazards in this final rule. Second, even if reasonable experts differ over the nature of ergonomic risks or cannot precisely quantify those risks, OSHA is not precluded from issuing a

rule. ''OSHA is not required to support its finding that a significant risk exists with anything approaching scientific certainty.'' Benzene, 448 U.S. at 656. As long as its findings are supported by a body of reputable scientific thought, OSHA may use conservative assumptions in interpreting the evidence and risk error on the side of overprotection rather than underprotection. Id. See also *American Dental Ass'n* v. *Martin*, 984 F.2d 823, 827 (7th Cir.), cert. denied, 510 U.S. 859 (1993) (''OSHA was required neither to quantify the risk to workers health nor to establish the existence of significant risk to a scientific certainty.''). Certainly, the record of this rulemaking contains conflicting evidence on the issues the Chamber raises, such as the relationship between ergonomic stressors and MSDs. However, given the high number of MSDs workers have been suffering and continue to suffer, OSHA does not believe that the lack of a consensus among knowledgeable experts justifies further delay in the issuance of a rule that is needed to protect workers against such ailments. In addition, there is a substantial body of scientific evidence to support the promulgation of an ergonomics standard.

Because the Chamber and other rulemaking participants have argued that Pepperidge Farm and Beverly undermine the basis for this rule, a brief discussion of those cases is appropriate.

Pepperidge Farm

In Pepperidge Farm, the Commission held that the employer willfully violated the OSH Act in requiring its employees to perform hazardous lifts, which caused them to suffer high rates of serious MSDs. The administrative law judge found that the employer's manual lifting tasks, which required the lifting of objects weighing up to 165 pounds, were hazardous, that the company recognized the hazard, and that feasible means of abating the hazard existed. 17 O.S.H. Cas. (BNA) at 2003. The employer did not dispute before the Commission the ALJ's findings that the lifting tasks were hazardous and that abatement was feasible, but argued that it did not recognize the hazard. The Commission rejected the argument, finding that Pepperidge Farm recognized the hazard based on recommendations by its worker's compensation carrier and its own corporate ergonomist. *Id.* at 2003–07. Thus, Pepperidge Farm illustrates, as OSHA has found in this rulemaking, that repetitive lifting of heavy objects is hazardous and that feasible means that will prevent or materially reduce the hazard are available.

The Commission also agreed with OSHA that repetitive motion assembly line tasks posed a recognized hazard. 17 O.S.H. Cas. (BNA) at 2010. Over a three-year period, 28 employees engaged in repetitive motion tasks had undergone 42 separate surgical procedures, including 32 carpal tunnel releases. Id. at 2015. Based on this evidence and on testimony about the rate of carpal tunnel syndrome in the general population, the Commission found that the incidence of carpal tunnel injury caused by repetitive motions performed at the plant was ''substantially in excess of that found in other populations, including other populations of workers.'' *Id.* at 2029. The Commission relied on expert testimony, evidence of biological plausibility, and epidemiological studies, to find that the high rate of MSDs suffered by the employees was caused by their work on the assembly line. *Id.* at 2028–29. The Commission also held that the employer recognized the hazard posed by the repetitive motions because the company's own medical staff attributed the cause of employee disorders to the tasks performed at the facility. *Id.* at 2030. And, the Commission held that the upper extremity musculoskeletal disorders resulting in surgery, disability, and restricted work suffered by employees from their assembly line tasks ''clearly involved serious physical harm.'' *Id.* at 2032. The actual hazard posed to employees from the highly repetitive work, as opposed to a potential hazard, was thus not ''benign,'' as claimed by one writer. Ex. 500–197 at p.12.

Finally, the Commission accepted OSHA's position that Pepperidge Farm was required to follow a process of abatement to eliminate or materially reduce the hazard. 17 O.S.H. Cas. (BNA) at 2034–35. The Commission agreed with OSHA on the core components of such a process—''accurate record keeping, medical treatment for injured employees, workplace analysis to assess the potential hazard and steps to abate it, education and training of workers and management, and further actions, to the extent feasible, to materially reduce the hazard.'' *Id.* at 2034. Under this process, the employer would determine ''precisely what particular mix of engineering and administrative controls most efficiently reduces the [hazard].'' *Id.* at 2033. The Commission found that Pepperidge Farm had in fact followed such a process by implementing a number of engineering and administrative controls and taking the other process steps recommended by OSHA. *Id.* at 2034–38. The Commission concluded that the evidence did not show that the steps taken by the company were inadequate and therefore held that Pepperidge Farm had fulfilled its duty under the general duty clause with respect to the repetitive motion hazards. *Id.* at 2040–41.

Beverly Enterprises

In Beverly Enterprises, OSHRC No. 91–3344 *et al.,* (Rev. Comm'n, Oct. 27, 2000), the nursing assistants (NA's) the company employed in its nursing homes were required to lift patients manually and, in many cases, without assistance. Those employees suffered a disproportionate number of cases of lower back pain (LBP), which was often so severe that the employee would be off work for long periods of time, in some cases six months to over a year. Slip. op. at 16. The administrative law judge concluded that OSHA had not proven that the cases of LBP were caused by Beverly's lifting practices. The ALJ therefore vacated the citation for lack of proof of a hazard.

The Commission reversed the ALJ's decision. The Commission extensively examined the evidence showing that the nurses aides were exposed to the risk of contracting LBP from their lifting activities. The evidence included: (1) The high rate of lost-time cases of LBP suffered by Beverly's NA's; (2) evidence of biomechanical modeling, which evaluated the compressive force imposed by lifts of various weights and body positions on the lower back and calculated the percentage of the working population that could safely perform such lifts; (3) the NIOSH lifting equation, a formula developed for NIOSH for determining a safe level of lift based on data compiled by various researchers on the biomechanical, epidemiological, psychophysical, and physiological bases for LBP; and (4) epidemiological studies showing a correlation between patient lifting and LBP in populations of health care workers. The Commission concluded:

> We find on the scientific evidence presented that manual lifting of residents is a known and recognized risk factor for LBP. Considering also the evidence showing that the frequency and manner in which Beverly's NA's performed their assigned tasks exposed them to compressive forces in excess of limits well-established and accepted in the scientific community, and that Beverly's working conditions resulted in numerous lost-time incidents and prevented Beverly's NA's from performing their usual daily activities, we conclude that the manual lifting of residents was shown on this record to be a hazardous work practice and that Beverly controls the methods used to perform the lifting.

Slip op. at 52.

The Commission further found that Beverly recognized the hazard. Among other evidence, the Commission noted that Beverly had adopted a ''Lift with Care'' program, which referred to the NIOSH limits for safe lifting and taught its NA's how to lift patients in a way that would reduce the likelihood both of injury to the resident and back injury to the NA. *Id.* at 53, 59–60. In addition, Beverly knew its NA's were suffering high rates of LBP from its workers' compensation claims; that failure to use correct lifting techniques is one cause of back injury; and that its nursing homes did not have enough mechanical hoists to ensure that such equipment was available when necessary. Id. at 54–55. Finally, the Commission relied on testimony showing that experts familiar with the nursing home industry perceive lifts such as those performed by Beverly to be hazardous. *Id.* at 62.

The Commission found that the hazard was likely to cause serious physical harm. ''LBP has a substantial and significant effect on the affected employees'' ability to perform their normal activities and effectively disables employees for periods of time which are extensive in some instances. We conclude that in view of the debilitating effect on employees and the potential duration of the disability, LBP is properly considered serious physical harm.'' *Id.* at 68.

The parties disputed before the Commission whether OSHA had proven the feasibility and likely utility of abatement measures. Since the administrative law judge had not made factual findings on that issue, the Commission remanded the case for such findings. *Id.* at 72–73.

Settlements of General Duty Clause Citations

The Chamber of Commerce takes issue with OSHA's claim in the NPRM (64 Fed. Reg. at 65774) that the settlement agreements that resolved most of the contested General Duty Clause citations showed the success of OSHA's enforcement efforts and the efficacy of ergonomics programs. Ex. 30–1722 at pp. 10–12. The Chamber says that employers settle ergonomic citations to avoid the prospect of expensive litigation, and that OSHA therefore cannot conclude that ''those employers ergonomics programs will in fact reduce injury in the workplace, and that, in the absence of OSHA's interventions, the employees in question would have been without protection.'' *Id.* at 10–11. OSHA continues to believe, contrary to the Chamber's assertion, that the settlement agreements are highly significant. While avoidance of the time and expense of litigation undoubtedly entered into those employers' decisions to settle, they nevertheless agreed to put forth substantial efforts to reduce or eliminate the hazards for which they had been cited. For many, the agreements went far beyond the cited locations to other corporate facilities not visited by OSHA and, therefore, far beyond any abatement orders OSHA might have obtained in litigation.

Those agreements and resulting efforts were clearly successful. As noted in the proposed rule preamble, OSHA held a workshop in March 1999, in which ten companies described their experience under their settlement agreement and with their ergonomics programs. All the companies that reported results to OSHA showed a substantially lower severity rate for MSD's since implementing the programs defined in their agreements. Ex. 26–1420. Most companies reported lower workers' compensation costs, as well as higher productivity and product quality. *Id.* Only five of the 13 companies involved in these agreements consistently reported the number of MSD cases or MSD case rates, and all five showed a significant decline in the number of lost workdays. None of the companies that reported severity statistics showed an increase in lost workdays as a result of the ergonomics program.

The success of OSHA enforcement coupled with settlements requiring comprehensive ergonomics programs was confirmed by the United Food and Commercial Workers International Union. The union recognized that ''[t]he majority of our successful programs in the meatpacking and poultry industries were propelled by OSHA enforcement. Ergonomic settlement agreement and corporate-wide settlement agreements (CWSAs) * * * demonstrate industry recognition of the existence of MSD hazards and the elements of a program to prevent worker injuries arising from exposure to these hazards.'' Ex. 32–210–2, p. 5. The UFCW gave a number of examples illustrating the efficacy of these agreements and resulting programs. One was that of IBP's Dakota City meatpacking plant, which implemented a comprehensive program as a result of citations and subsequent settlement agreement. Cost savings attributed to the program ''* * * were realized in the following areas: [employee] turnover was down significantly . * * *; [MSD] incidence dropped dramatically; surgeries fell; [and] worker's compensation costs were reduced significantly.'' *Id.* at 9.

The Chamber of Commerce asserts that a settlement agreement with Hudson Foods is an example of a case that the employer settled despite palpable weaknesses in OSHA's evidence. Ex. 30–1722 at pp. 11–12. The Chamber suggests that OSHA settled for little to get out of litigation that was not going well. In fact, OSHA had developed strong evidence to support the citations and was fully prepared to go to trial if necessary. See generally OSHA's Reply to Hudson Foods. Inc.'s Motion to Exclude Expert Testimony, Secretary v. Hudson Foods, Inc., dated April 30, 1999 (OSHRC Docket No. 98–0079)(Ex. 502–26). However, OSHA was willing to settle because the settlement secured all of its objectives. Hudson, which was purchased by Tyson Foods, Inc. after OSHA's inspection, but before the settlement, withdrew its notice of contest to the ergonomic allegations contained in the citations, paid a total penalty of $200,000 for all citations, and, most importantly, agreed to implement the comprehensive, existing Tyson Foods ergonomics program that the parties anticipated would abate the violations. Ex. 502–42, pp. 3–5, Exhibits ''A'' and B''. With this hazard recognition and gain in employee safety and health, continued litigation over a larger penalty was pointless. The exculpatory language cited by the Chamber was acceptable in light of the intervening purchase of Hudson by Tyson Foods, which had not caused the cited conditions and had displayed good faith through its own implementation of a comprehensive ergonomics program. Ex. 30–4137, p. 1.

OSHA's Red Meat Guidelines

In addition to OSHA's enforcement efforts, many knowledgeable witnesses agreed that the agency's Ergonomics Program Management Guidelines for Meatpacking Plants (''Red Meat Guidelines'') (Ex. 2–13) have resulted in implementation of successful workplace programs addressing ergonomic hazards. For example, in contrasting OSHA's proposal to the Red Meat Guidelines, IBP Inc.''s Bob Wing acknowledged that the Guidelines had been successful. Ex. 30–4046, p. 1. Similarly, the American Meat Institute (''AMI''), the main representative for the U.S. Meat Industry, including 276 meat packers and processors, operating 559 facilities, acknowledged that the industry worked with OSHA on the Red Meat Guidelines and has been using them for nearly ten years. Ex. 30–3677, p. 1. The AMI notes that the Red Meat Guidelines work and that the industry has made substantial progress in addressing ergonomic issues since

development of the Guidelines. *Id.* at 1–4. The AMI recommends that the Guidelines be extended throughout general industry. *Id.* at 4. The utility of OSHA's Red Meat Guidelines was also hailed by the United Food and Commercial Workers Union, which noted that upon publication of the Guidelines, industry began to respond both from the standpoint of technology, as well as ergonomic programs. Ex. 32–210–2, pp. 25–26. The success of the Guidelines led to use and acceptance in other industries. The poultry industry appears to have secured substantial reductions in chronic MSD's from adherence to the principles in the document (Ex. 30–3375, p. 1).

Enforcement Actions and Compliance Costs

Some commenters (*e.g.,* Anheuser-Busch and United Parcel Service, Ex. 32–241–4 at pp. 259–266 and the National Coalition on Ergonomics *et al.,* Ex. 500–197 at pp. II–79–84) contend that OSHA's compliance cost estimates ignore the way the agency has enforced ergonomic requirements under section 5(a)(1). The commenters assert that OSHA's estimated costs of compliance with the ergonomics standard are far lower than the costs of the controls OSHA has ''demanded'' in 5(a)(1) enforcement actions.

This argument lacks a factual foundation because it is unsupported by any evidence of the abatement costs associated with the section 5(a)(1) ergonomics citations. In any event, OSHA does not believe those costs are extravagant. In many cases, the abatement measures sought by OSHA were already being used by similarly-situated employers. In Hudson Foods, as discussed above, the settlement agreement simply required Hudson to adopt the ergonomics program of its new owner, Tyson Foods. In Pepperidge Farm, abatement of the lifting violations found by the Commission required the company to do no more than its own corporate ergonomist had recommended. 17 O.S.H. Cas. (BNA) at 2004–06. Similarly, the process for abating the repetitive motion hazards that Pepperidge Farm had already been following was found by the Commission to meet its duty to implement a feasible means of abatement. *Id.* at 2039–41. Thus, the citations in Pepperidge Farm did not require the employer to take additional steps beyond those it was already taking.

Moreover, these arguments reflect a fundamental misunderstanding of the significance of abatement requirements in 5(a)(1) citations and on a mistaken belief that employers who received section 5(a)(1) citations are typical of the employers who will have duties under this standard. Section 5(a)(1) comes into play when there is a serious recognized hazard in an employer's workplace that need not be abated under a specific standard. In order to prove an employer violated section 5(a)(1), OSHA must prove that a recognized hazard that is likely to cause death or serious physical harm exists in the employer's workplace. *Nelson Tree Srvs* v. *OSHRC,* 60 F.3d 1207, 1209 (6th Cir. 1995). OSHA must also specify a means by which the employer can eliminate or materially reduce the hazard and demonstrate the feasibility and likely utility of those means. Id. OSHA can not, however, ''demand'' that an employer abate a 5(a)(1) violation in any particular way. The employer is not limited to using the means listed in the citation to eliminate or materially reduce the hazard but is free to use any means that accomplishes that goal. See OSHA Field Inspection Reference Manual, Ch. A.4.f(2) (''the employer is not limited to the abatement methods suggested by OSHA.''); *Marshall* v. *B.W. Harrison Lumber Co.,* 569 F.2d 1303, 1308 (5th Cir. 1978). An employer will generally have more detailed knowledge of its operations and processes than OSHA will gain during a relatively brief inspection of the workplace and may therefore be able to devise methods of eliminating ergonomics hazards that are more cost effective than those proposed by OSHA. As a result, the costs associated with the means of abatement listed in a citation, even if those costs were quantified in this record, may well be higher than those the employer will actually incur.

For additional reasons as well, the costs associated with section 5(a)(1) citations cannot be used to calculate the costs of this standard. The employers who have been cited for 5(a)(1) ergonomics violations are not representative of the universe of employers who will have compliance duties under the standard. As noted above, to sustain a 5(a)(1) citation, OSHA must be able to prove not only that a hazard is present but that the hazard is one that is recognized by the employer or its industry and is likely to cause death or serious physical harm. Because of this heavy burden of proof, OSHA has only issued 5(a)(1) citations for ergonomic violations to a relatively small number of employers, and those employers have been cited because their employees had been suffering unusually high rates of work-related MSDs. And because the employers cited under 5(a)(1) had particularly severe ergonomics problems, their compliance costs would not be representative of the costs the average employer will incur in complying with the standard.

Moreover, the existence of an ergonomics standard will help reduce compliance costs compared to enforcement of ergonomics protection under section 5(a)(1). It has frequently been observed that reliance on standards is preferable to enforcement under section 5(a)(1) because standards spell out employer duties more specifically than does section 5(a)(1). *E.g., St. Joe Minerals Corp.* v. *OSHRC,* 647 F.2d 840, 846 n.13 (8th Cir. 1981); B & *B Insulation, Inc.* v. *OSHRC,* 583 F.2d 1364, 1371 & n.12 (5th Cir. 1978). That is true of this final rule. For example, unlike section 5(a)(1), this rule establishes safe harbors that will enable employers to know with a high degree of certainty when they have fulfilled their compliance obligations. By providing better notice of employer duties than does section 5(a)(1), the standard will promote the efficient use of employer resources and thereby help minimize costs.

3. Cost-effectiveness.

All OSH Act standards must be cost effective. Cotton Dust, 453 U.S. at 514 n. 32. A standard is cost-effective if the protective measures it requires are the least costly of the available alternatives that achieve the same level of protection. *Id.;* Lockout/Tagout II, 37 F.3d at 668.

OSHA has taken a number of steps to ensure that this final rule is cost-effective. First, the rule allows employers with problem jobs to use any combination of engineering, administrative, and work practice controls to control the MSD hazards. Therefore, from the entire range of controls that would be potentially effective in an employer's workplace, the employer is able to select those that are the least costly.

The standard also ensures the cost-effective use of employer resources by focusing employers' compliance resources where they will do the most good: on those jobs that are demonstrably causing MSDs. It requires all covered employers to provide basic information about MSDs to its employees, but only those employers whose employees experience MSD incidents in jobs that meet the standard's Action Trigger have additional duties. In this regard, the final standard is more cost-effective than the proposal, which would have required all employers engaged in manufacturing and manual handling to implement ergonomics programs.

The Quick Fix option in the final rule also adds to the rule's cost-effectiveness by allowing employers to fix problem jobs without incurring the additional costs of setting up an entire ergonomics program. The Quick Fix option is available for those jobs that can be fixed quickly and completely once the job is identified as a problem job.

The extended compliance dates in the standard will also help minimize employers' compliance costs. Employers are given 11 months from the date of the standard's publication to provide their employees with the basic information the standard requires. Employers will thereby have sufficient time to first become familiar with the standard themselves and then have time to provide the required information to their employees.

Employers are given up to four years from the standard's effective date to complete the implementation of permanent controls for problem jobs. This extended time frame will promote cost-effectiveness in several ways. First, it will give employers sufficient time to learn about the range of available controls, both from the compliance assistance OSHA plans to make available and from other sources. Many employers will thereby be able to implement ''off-the-shelf'' controls, which will be less costly than if the employer needs to develop controls on its own or hire an outside expert to recommend controls. Second, the extended compliance period will enable an employer to adopt an incremental abatement approach that may, in turn, result in less expensive controls than if the employer had to commit itself to a control strategy immediately. For example, an employer can first try a low-cost control and, if it works, would not need to consider higher-cost controls. Third, the extended time frame will enable employers who have more than one problem job to control the highest risk jobs first while still giving them sufficient time to control their other problem jobs. This will enable such an employer to avert more MSDs at an earlier time and thereby minimize its costs for MSD management and worker removal protection.

Finally, OSHA is permitting those employers who already have implemented ergonomics programs meeting certain criteria to continue those programs rather than establish new programs under this final rule. Those employers whose current programs qualify for ''grandfathering'' will therefore not incur any new costs as a result of this final rule.

4. Alleged Conflict With Other Federal Statutes

A number of commenters contend that portions of the standard conflict with other federal laws, in particular the National Labor Relations Act (NLRA), 29 U.S.C. 141 *et seq.*, the Americans with Disabilities Act (ADA), 42 U.S.C. 12101 *et seq.*, the Family and Medical Leave Act (FMLA), 29 U.S.C. 2601 *et seq.*, Title VII of the Civil Rights Act of 1964, 42 U.S.C. s 2000e *et seq.*, and the Age Discrimination in Employment Act (ADEA), 29 U.S.C. 621 *et seq.* The preamble to the proposed standard discussed in some detail the standard's consistency with the NLRA and the ADA, see 64 FR at 65,794–65,795 (NLRA), 66,058–66,059 (ADA), and, as discussed below, the comments do not alter OSHA's conclusion that there is no conflict with those statutes. The proposed preamble did not address the FMLA, Title VII, or the ADEA, but there too we conclude there is no conflict, as discussed below.

a. National Labor Relations Act—NLRA's prohibition on employer-dominated labor organizations in nonunion workplaces. Various provisions of the standard require employers to convey information to their employees and obtain information from their employees. Paragraph (i), governing employee participation, requires that employees: (1) Have ways to promptly report MSDs, their signs and symptoms, and MSD hazards in the workplace; (2) receive prompt responses to their reports of MSD signs and symptoms and MSD hazards; (3) have ready access to the standard and to information about MSDs, MSD signs and symptoms, and the employer's ergonomics program; and (4) have ways to be involved in developing, implementing and evaluating the ergonomics program. Paragraph (j) requires an employer analyzing a problem job to talk with affected employees and their representatives about the tasks they perform that relate to MSDs. Paragraph (m) provides that an employer required to control a problem job must ask employees and their representatives for recommendations about reducing the MSD hazards and consult with employees and their representatives about the effectiveness of the controls the employer implements. Paragraph (o) provides that an employer who chooses the Quick Fix option must ask employees and their representatives for recommendations about reducing the MSD hazards. Paragraph (t) requires the employer to train employees in the aspects of the ergonomics program that affect them and to give the employees the opportunity to ask questions about the ergonomics program. Paragraph (u) requires employers to consult with employees and their representatives about the effectiveness of the program and any problems with it.

Some commenters contend that the requirement for employee participation in an ergonomics program, to the extent it applies in nonunion workplaces, would conflict with section 8(a)(2) of the NLRA, which prohibits employers from dominating or interfering with a labor organization. Ex. 32–368–1 at pp. 124–26 (National Coalition on Ergonomics); Ex. 32–234–2 at pp. 29–30 (National Solid Waste Management Association); Ex. 30–3845 at p. 36 (Forum for a Responsible Ergonomics Standard). The National Coalition on Ergonomics (NCE) states that because the standard requires that employers provide ways for employees to be involved in developing, implementing, and evaluating ergonomics programs, the standard is an ''open invitation'' to violate Section 8(a)(2). Ex. 32–368–1 at p 126. NCE also asserts that requiring employers to respond to employee reports of MSD symptoms would require conduct violating Section 8(a)(2). Id.

These arguments are without merit. Nothing in the standard requires creation of any sort of employee organization or committee, let alone one that violates the NLRA. Section 8(a)(2) of the NLRA does not restrict the ability of nonunion employers to deal with employees as individuals, and such employers can comply fully with the standard's employee participation provisions by doing so. Contrary to NCE's contention, the requirement that employers respond to employee reports of MSD symptoms does not violate the NLRA. Even before the passage of the OSH Act, it was common for employees to report injuries to employers, and for responsible employers to respond to those reports by correcting workplace hazards. See Taft Broadcasting Co., Kings Island Div., 13 O.S.H. Cas. (BNA) 1137, 1140 (Rev. Comm'n 1987), aff'd, 849 F.2d 990 (6th Cir. 1988). It has never been suggested that such actions violate the NLRA, and they clearly do not.

Moreover, nonunion employers can use a variety of other means to comply with the employee participation provisions of the standard without running afoul of section 8(a)(2)'s proscription against dominating or interfering with the formation or administration of any labor organization. A ''labor organization'' under the NLRA is ''any organization of

any kind, or any agency or employee representation committee or plan, in which employees participate and which exists for the purpose, in whole or in part, of dealing with employers concerning grievances, labor disputes, wages, rates of pay, hours of employment, or conditions of work.'' 29 U.S.C. § 152(5). A critical component of this definition is that the organization or committee ''deal[] with'' an employer. Such ''dealing'' occurs if there is a ''bilateral process'' that entails a pattern or practice by which a group of employees makes proposals to management and management responds to those proposals by acceptance or rejection by word or deed. EFCO Corp., 327 N.L.R.B. No. 71 (Dec. 31, 1998), aff'd, *EFCO Corp.* v. *NLRB,* 2000 WL 623436 (4th Cir. 2000) (unpublished); Electromation, Inc., 309 N.L.R.B. 990 (1992). However, if there are only isolated instances in which a group makes ad hoc proposals to management, the element of dealing is lacking. E.I. du Pont de Nemours & Co., 311 N.L.R.B. 893, 894 (1993).

In its preamble to the proposed rule, OSHA carefully explained that the requirement that employees have ways of being involved in the ergonomics program can be satisfied by measures that fall short of the employer-dominated committees and other employee organizations that violate Section 8(a)(2). In general, the agency emphasized that the ''nature, form, and extent of how employers must provide employees with opportunities to participate will vary among workplaces,'' depending upon a variety of factors, including ''[t]he presence or absence of a union.'' 64 FR at 65,800. In particular, it explained that OSHA has been careful to structure the ''employee participation requirements so that they are entirely consonant with the case law based on the NLRA.'' 64 FR at 65,795. Thus, the agency explained that the proposed rule does not ''mandate any particular method '' such as employee committees '' for ensuring employee participation,'' and that this ''leaves employers free to involve employees in the program in ways that do not violate the NLRA but will further meaningful employee participation.'' *Id.*

Moreover, OSHA has already explained that there are various permissible ways to meet the requirement that employees be involved in developing, implementing, and evaluating ergonomics programs. The preamble to the proposed standard pointed to certain methods of obtaining employee input through employee group activity—a brainstorming group, an information-gathering committee, or a safety conference—that is structured so as not to ''deal with'' the employer, within the meaning of Section 8(a)(2). See 64 FR at 65,795 (discussing Ex. 26–29: May 13, 1999 testimony of Henry L. Solano, Solicitor of Labor, to the Subcommittee on Workforce Protections, Committee on Education and the Workforce in the House of Representatives). In addition, the preamble noted that employers can provide mechanisms for individual employees to report problems and make recommendations, or can assign safety responsibilities to employees as part of their job descriptions, without implicating Section 8(a)(2). *Id.*

The NCE questions whether ''brain-storming'' groups or ''information-gathering'' committees would actually fall outside the scope of Sections 2(5) and 8(a)(2). Ex. 32–368–1 at p. 126. These types of entities are specifically mentioned in NLRA case law as ones that would pass muster. See E.I. du Pont, 311 N.L.R.B. at 894, cited in Ex. 26–23, pp. 11–12; see also EFCO Corp., 327 N.L.R.B. No. 71, slip op. 5 (''[a] significant portion of the purposes and functions of the Safety Committee, such as the reporting and correction of safety problems, would not contribute to a finding that it is a labor organization''); *id.* (employee suggestion screening committee did not ''deal with'' employer because it merely reviewed and forwarded suggestions without formulating proposals or presenting them to management). Nor does the fact that the proposed preamble elsewhere refers to an ''ergonomics committee'' or a ''labor-management CTD committee'' as effective components of an ergonomics program suggest that the agency is being ''disingenuous,'' as NCE charges. Ex. 32–368–1 at p. 125 n. 228. The general reference to an ''ergonomics committee'' does not suggest that OSHA, contrary to its express statements, requires employers to institute employee committees that violate Section 8(a)(2), and the reference to a joint-labor management committee is consistent with OSHA's statement that a permissible mechanism for employee participation in unionized workplaces, consistent with the proposed standard and the NLRA, is a ''joint labor-management committee established in compliance with the NLRA by bargaining between the employer and the union representing the employees.'' 64 FR at 65,795.

Impact on collective bargaining agreements in unionized workplaces. As to unionized settings, the Chamber of Commerce contends that the proposed rule would force employers to run afoul of the NLRA and the Railway Labor Act because it would require employers to make unilateral changes in mandatory subjects of bargaining, thereby subjecting them to unfair labor practice charges under section 8(a)(5) of the NLRA, labor unrest, and possible criminal penalties. Ex. 30–1722 at p. 82. The NCE and others say that unionized employers would be forced into direct dealing with represented employees and will thereby violate section 8(a)(5). Ex. 500–197 at pp. III–53–61. Similarly, the Edison Electric Institute (EEI) reads the proposed standard as requiring employers to deal with individual employees regarding their working conditions and contends that this requirement ''creates the seeds of conflict with the exclusive bargaining authority of recognized unions under Section 9(a) of the [NLRA].'' Ex. 32–300–1 at p. 9. The Integrated Waste Services Association (ISWA) makes a similar argument. Ex. 22–7–1 at pp. 16–17. EEI and ISWA urge OSHA to make clear in the final rule that where employees are represented by a certified bargaining representative, employers will satisfy the employee involvement provisions of the standard by dealing in good faith with the union. Ex. 32–300–1 at p. 11 (EEI); Ex. 22–337–1 at p.17 (ISWA).

As discussed elsewhere in this preamble, employee participation in an ergonomics program is a vital component of an effective program. OSHA further believes that unions, where they exist, must be involved in the program and has therefore provided that ''representatives'' of employees be afforded the opportunity to participate in job hazard analyses, recommendations for controls, and program evaluation. Cf. OSHA Field Inspection Reference Manual, Ch. II, Sec. A.3.f (where employees are represented by a recognized union, the highest ranking on-site union official or union employee representative designates who will represent employees during a walkaround inspection); OSHA Instruction CPL 2–2.45A (Sept. 13, 1994), Process Safety Management of Highly Hazardous Chemicals—Compliance Guidelines and Enforcement Procedures, Appendix B (''employee representative'' under employee participation provision of process safety management standard, 29 C.F.R. 1910.119(c), refers to recognized union). Thus, rather than bypassing unions, the standard provides that they play an important role.

For example, the employer must, under paragraph (m), ask the ''employees and their representatives'' for recommendations about how to best eliminate or control MSD hazards. The

requirement that employers ask ''employees and their representatives'' for such recommendations does not mean that a unionized employer must deal separately with its represented employees and their union. That language is intended to encompass the entire range of workplaces, including nonunion workplaces, unionized workplaces in which all of the employees in problem jobs are represented by the union, and workplaces in which some of the employees in problem jobs are represented by the union and some are not. In workplaces in which all employees in a problem job are within the bargaining unit, employers may, as EEI and ISWA suggest, fulfill their obligations under the provisions that require the involvement of ''employees and their representatives'' by dealing in good faith with the union. The employer and union may agree on any mechanism for employee participation that is consistent with the standard.

Some commenters note that ergonomic provisions have been incorporated into collective bargaining agreements and assert that employers may be forced to violate these agreements to comply with the rule. Ex. 30–1722 at p. 82 (Chamber of Commerce); Ex. 500–197 at p. III–62 (National Coalition on Ergonomics and others). The duty to bargain with recognized unions over safety and health matters does not excuse employers from complying with OSH Act standards. Employers and unions cannot bargain away an obligation under the Act. See *Trans World Airlines* v. *Hardison*, 432 U.S. 63, 79 (1977) (''neither a collective-bargaining contract nor a seniority system may be employed to violate the statute.''); *Alexander* v. *Gardner Denver Co.*, 415 U.S. 36, 51 (1974) (notwithstanding contrary provision of collective bargaining agreement, employee has right to court hearing on race discrimination claim under Title VII). See generally *United Steelworkers* v. *Marshall*, 647 F.2d 1189, 1236 (D.C. Cir. 1980), cert. denied, 453 U.S. 913 (1981) (''[i]n passing a massive worker health and safety statute, Congress certainly knew it was laying a basis for agency regulations that would replace or obviate worker safety provisions of many collective bargaining agreements''), cert. denied, 453 U.S. 913 (1981); see also Murphy Oil USA, Inc., 286 NLRB 1039, 1042 (1987) (employer can unilaterally adopt work rule required by OSHA standard without bargaining with union); *Louisiana Chem. Ass'n* v. *Bingham*, 550 F. Supp. 1136, 1144 (W.D. La. 1982), aff'd, 731 F.2d 280 (5th Cir. 1984). Thus, if there is an irreconcilable conflict between the standard and a collective bargaining agreement, the standard would prevail.

The possibility that existing collective bargaining agreements address ergonomics does not, as the Chamber of Commerce suggests, place employers in an untenable position. If such collectively bargained programs meet the standard as adopted or qualify under the standard's grandfather clause, they will not need to be altered. If they conflict with the standard, the employer's statutory obligation to comply with the standard takes priority over the agreement. Murphy Oil, 286 NLRB at 1042 (employer ''was not only within its rights, but also legally bound to adopt a rule that complied with Federal law.''); Standard Candy Co., 147 NLRB 1070, 1073 (1964) (employer was legally obligated to raise wages to new federally-mandated minimum wage without bargaining with union).

To the extent the employer has discretion in the means by which it achieves compliance, and the means involve a mandatory subject of bargaining, the employer would be required to bargain with the union regarding the means of compliance. United Steelworkers, 647 F.2d at 1236 (''[w]hen an issue related to earnings protection not wholly covered by OSHA regulation arises between labor and management, it will remain a mandatory subject of collective bargaining''); see Watsonville Newspapers, LLC, 327 N.L.R.B. No. 160, slip op. 2–3 (Mar. 24, 1999); Dickerson-Chapman, Inc., 313 N.L.R.B. 907, 942 (1994) (although employer must comply with OSH Act standard requiring daily inspections of open excavations by a ''competent person,'' employer must bargain with union about who would be so designated); Hanes Corp., 260 N.L.R.B. 557, 561–562 & n.12 (1982) (where OSHA standard required use of respirators but gave employer discretion with respect to choice of respirator, employer could require use of respirator without bargaining, but could not unilaterally determine which approved respirator would be used). Nothing in the ergonomics program standard forecloses employers from bargaining with unions about discretionary aspects of the standard that are mandatory subjects of bargaining under the NLRA. To the contrary, OSHA has repeatedly emphasized the importance of involving employee representatives in all aspects of the ergonomics program. As the AFL–CIO points out:

> The reality is that since the OSHAct's passage, employers and unions have been able to meet both their responsibilities under OSHA's standards and their duty to bargain under the NLRA. Unions have a strong interest in dealing with employers over safety and health matters, and will eagerly deal with employers over ergonomics. The record reflects extensive union-management efforts to tackle ergonomic hazards. Thus, the notion that the employer's bargaining obligation stands in the way of OSHA compliance does not reflect reality. Ex. 500–218 at p. 162.

The National Coalition on Ergonomics argues that imposition of some of the controls suggested by OSHA could violate seniority and line of progression provisions in collective bargaining agreements. Ex. 32–368–1 at p. 81. The NCE is apparently referring to the standard's inclusion of employee rotation in the definition of ''administrative controls.'' The NCE also claims that employees being rotated into other jobs may not be qualified to perform those jobs and that job rotation can create a greater hazard by subjecting employees to the risk of new MSD risk factors they were not exposed to in their prior jobs. Id.

These objections are unpersuasive. First, many workplaces are not covered by collective bargaining agreements that contain seniority or line of progression limitations. In those workplaces, the concerns raised by NCE are totally absent. Second, the standard does not require any employer to use job rotation. To the contrary, it specifically states that engineering controls, where feasible, are to be preferred over administrative controls, including job rotation. However, to give employers maximum flexibility, the standard gives employers the option of using administrative controls. As a result, those employers who can use job rotation safely and effectively are free to do so, while those who believe job rotation would lead to contractual or safety problems can address ergonomic hazards in other ways.

b. Americans with Disabilities Act. The ADA is an anti-discrimination statute that prohibits discrimination by covered employers against ''qualified individual[s] with a disability,'' that is, persons ''with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires.'' 42 U.S.C. 12111(8), 12112(a). Under the ADA, employers must reasonably accommodate disabled workers. However, if there is no reasonable accommodation that would permit a disabled employee to work for the employer, the employer is free to discharge the employee under the ADA.

Commenters argue that the proposed standard improperly requires employers to take steps beyond those required by the ADA in that the standard's requirement that employers control ergonomics hazards requires steps beyond ADA's requirement for reasonable accommodation. Ex. 32–368–1 at p. 118 (NCE); Ex. 30–1722 at p. 81 (Chamber of Commerce). These comments are fundamentally misguided.

In the preamble to the proposed rule OSHA explained its authority under the OSH Act for promulgating this standard. In order to achieve the Act's purpose of assuring ''safe and healthful'' workplaces, 29 U.S.C. 651(b), the Secretary of Labor is authorized to promulgate health and safety standards, *id.* § 655(b), which may require ''conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.'' *Id.* § 652(8). Pursuant to this authority, see 64 FR at 65,774–65,775, OSHA has determined, based on the best available evidence, that the various components of the ergonomics standard are reasonably necessary and appropriate to provide adequate protection from hazards that are reasonably likely to cause or contribute to work-related MSDs. It is on the basis of this authority that OSHA is requiring employers to take such actions as analyzing jobs to identify MSD hazards, implementing measures to control such hazards, and removing a disincentive to reporting MSDs by providing economic protection for workers who are placed on temporary work restrictions or removed from work because of MSDs related to their jobs. See generally 64 FR at 65,838–65,861. Nothing in the ADA limits OSHA's authority under the OSH Act to issue standards that are reasonably necessary and appropriate to protect worker health and safety.

The ADA's definition of disability is not keyed to impairments that are occupational in origin, but more generally encompasses impairments (whatever their origin) that substantially limit (or are regarded as limiting) an individual's major life activities. 42 U.S.C. §§ 12111(10), 12112(b)(5)(A). Reasonable accommodations to such impairments may include ''job restructuring, part-time or modified work schedules, reassignment to a vacant position, acquisition or modification of equipment or devices'' and other similar accommodations. *Id.* § 12111(9)(B). Employers are not required, however, to provide accommodations that would pose undue business hardship, which is defined as ''an action requiring significant difficulty or expense, when considered in light of'' certain statutory factors. *Id.* §§ 12111(10), 12112(b)(5)(A).

As OSHA explained in the preamble to the proposed standard, the ergonomics standard and the ADA are complementary in purpose. 64 FR at 66,058–66,059. The standard implements measures in problem jobs that would reduce the likelihood of those jobs causing or aggravating MSDs (a category that includes impairments that may be disabilities under the ADA, although it also includes impairments that do not rise to the level of an ADA-covered disability). These measures will not only prevent MSDs within the meaning of the ergonomics standard, but also make it easier for persons with existing impairments (including ADA-covered disabilities) to work in those jobs. Accordingly, the standard comports well with the ADA's goal of reducing barriers to the employment of individuals with disabilities.

Notwithstanding this complementary purpose, the NCE and the Chamber of Commerce argue that the standard impermissibly conflicts with the ADA because it may require employers to make changes to jobs it is not required to make under the ADA. Ex. 32–368–1 at p. 118 (NCE); Ex. 30–1722 at p. 81 (Chamber). This contention is meritless. As noted, the ergonomics standard is squarely based on OSHA's authority to promulgate health and safety standards. Moreover, although the NCE and the Chamber suggest that the ADA prohibits OSHA from requiring changes to jobs beyond the reasonable accommodations required under the ADA, nothing in the ADA even remotely supports this proposition. 29 C.F.R. pt. 1630 app. at 354 (''nothing in [EEOC ADA regulations] prohibits employers * * * from providing accommodations beyond those required by th[e]'' regulations).

Similarly, nothing in the ergonomics standard conflicts with the ADA. The standard does not purport to authorize discrimination that is prohibited by the ADA; nor does it purport to eliminate any defenses that an employer may have to an ADA action. NCE's charge that OSHA is attempting to eliminate defenses under the ADA is based on a misunderstanding of the thrust of the pertinent agency statements in the preamble to the proposed standard. Ex. 32–368–1 at p. 121; see 64 FR at 66,059–66,060. OSHA explained that the ergonomics standard, by requiring employers to control problem jobs, ultimately should make it easier for employers to hire persons with MSD-related disabilities and should lessen the incidence of MSDs. The standard should therefore lessen the number of occasions on which employers would need to raise defenses under the ADA, such as that the accommodation involves an undue hardship or that the disabled person is a direct threat, see 42 U.S.C. 12113(b), to the health or safety of others that cannot be eliminated by the reasonable accommodation. 64 FR at 66,060. This salutary effect does not establish a conflict with the ADA and provides no ADA-based reason for not implementing the standard.

NCE argues that a provision in the proposal (proposed section 1910.132(a)(2)) conflicts with the ADA by requiring employers to keep confidential certain information pertaining to an employee's medical condition that the employer could, under limited circumstances, release under the ADA. Ex. 32–368–1 at pp.119–20. The proposed provision would have required confidentiality ''to the extent permitted and required by law,'' avoiding any possible conflict with another statute's disclosure requirement. The provision has been deleted from the final standard because, as NCE notes, it is superfluous. Ex. 32–368–1 at p.120.

NCE also objects to a provision in the proposed standard providing that the employer instruct the health care provider (HCP) that diagnoses unrelated to workplace exposure to MSD must remain confidential and must not be included in the opinion communicated to the employer. Ex. 32–368–1 at p.119. This provision has been carried over into the final standard (with the addition of an exception as discussed below). Although NCE appears to contend that this provision also conflicts with the ADA's confidentiality exceptions, it offers no cogent reason why this is so. OSHA continues to believe, as it explained in the preamble to the proposed standard, that a provision protecting the confidentiality of medical conditions that are not workplace-related is needed to protect employees' privacy and, for that reason, has been a routine feature of OSHA health standards for many years. 64 FR at 65,844. Such a confidentiality provision is reasonably necessary to encourage employee reporting of MSD hazards because employees could be deterred from such reporting if they knew information about their medical condition would be improperly disclosed. Thus, the agency clearly has the authority to adopt such a provision. Moreover, OSHA has added language to the provision clarifying that it is subject to an exception: the information may be

communicated where authorized by federal or state law.

Finally, the NCE contends that compliance with the proposed standard could subject employers to discrimination claims under the ADA. NCE argues that because the ergonomics standard may require employers to alter jobs to a greater extent than does the ADA's reasonable accommodation requirement, persons with non-MSD disabilities may claim that the employer has engaged in disparate treatment by providing more extensive accommodations for MSD disabilities than non-MSD disabilities. Ex. 32–368–1 at p. 119. Even assuming that allegations of differing degrees of accommodation for different disabilities states a viable claim of disparate treatment under the ADA, the employer would have a defense to such a claim. EEOC regulation, 29 CFR 1630.15(e), recognizes that ''[i]t may be a defense to a charge of discrimination under this part that a challenged action is required or necessitated by another Federal law or regulation.'' The employer's obligation to comply with the ergonomics standard would constitute a legitimate, nondiscriminatory reason explaining the difference between its treatment of disabilities also covered under the ergonomics standard and its treatment of other disabilities. See generally id. pt. 1630, app. at 369 (necessity of compliance with federal law or regulation a defense, where not a pretext for discrimination).

OSHA emphasizes that this final standard does not limit an employer's obligation to comply with the ADA. If an HCP advises the employer, pursuant to paragraph (r)(2)(ii) of the standard, that an employee with a MSD can never resume his or her former work activities, any obligations the employer has toward that employee under the ADA would remain in effect.

c. Family and Medical Leave Act. Under the FMLA, an ''eligible employee'' is entitled to take up to a total of 12 work weeks of unpaid leave for the birth of a child and to care for such child, for the placement of a child for adoption or foster care, to care for a spouse or an immediate family member with a serious health condition, or when he or she is unable to work because of a serious health condition. See 29 U.S.C. 2612(a)(1). In response to the proposed standard, the Chamber of Commerce and the NCE pointed out that, while the FMLA only requires employers to provide 12 weeks of unpaid leave to employees with serious health conditions, the proposed standard's provisions for work restriction protection provided that an employee unable to continue in his or her current job due to a work-related MSD may be placed on leave for up to 6 months [90 days in the final rule] with 90% of pay. The Chamber states that the agency has not explained how ''it acquired the authority to enact a regulation that would make Congressional policies embodied in the FMLA irrelevant for OSHA's preferred class of employees,'' Ex. 30–1722 at p. 82. The NCE similarly contends that ''OSHA cannot supersede the requirements of another federal statute without express statutory authority,'' Ex. 32–368–1 at p. 124. Similar arguments are made by the National Solid Wastes Management Association (Ex. 32–234–2 at p. 28); and Paul, Hastings, Janofsky & Walker LLP (Ex. 32–211–1 at pp. 10–11);

As with the ADA, there is nothing in the FMLA or its implementing regulations that suggests any restriction on OSHA's authority to regulate workplace safety and health. Nor is there anything in the ergonomics standard that would cause an employer to violate the FMLA. There is thus no FMLA-based obstacle to adoption of the standard. Moreover, the FMLA requires employers to accommodate employees' need for time off to care for their own or their family's health. The ergonomics rule will prevent many incipient MSDs from progressing to the type of serious health conditions that might justify leave under the FMLA and will thereby reduce the need for employees to invoke the FMLA's protections. Thus, as with the ADA, the ergonomics standard works in concert with, not against, the purposes of the FMLA.

The NCE raises some questions about the interplay between the FMLA and the standard's work restriction protection (WRP) provisions. Ex. 32–368–1 at p. 123. NCE asks, for example, whether an employee could receive six months of WRP payments while removed from work and then obtain an additional 12 weeks of unpaid leave under the FMLA. FMLA regulations provide that an employer may in specified circumstances designate paid leave as FMLA leave. 29 CFR 825.208. Nothing in the ergonomics standard precludes an employer from designating WRP-leave as FMLA leave if the limited circumstances under which paid leave may be designated as FMLA leave are met.

NCE also contends that the ergonomic standard's provisions regarding opinions of health care providers (HCPs) conflict with FMLA regulations regarding medical certifications for the existence of a serious health condition. Ex. 32–368–1 at p. 123; citing 29 U.S.C. 2613. See also 29 CFR 825.305–825.308. The ergonomics standard does not preclude employers from making use of the FMLA medical certification provisions when questions arise as to the application of the FMLA to an employee with an MSD-based condition. We note, however, that in the scenario with which NCE seems most concerned—the employee who is on paid WRP-leave—it is highly unlikely that there will be a bona fide dispute about whether the employee has a serious health condition that has rendered him or her unable to perform the functions of the job. See 29 CFR 825.114(a)(2) (serious health condition includes condition that causes more than three consecutive calendar days of incapacity and involves either two visits to a HCP or one visit followed by a regimen of continuing treatment under the HCP's supervision), 825.115. In other words, it is implausible that an employee on paid WRP-leave would resist the employer's designation of the leave as FMLA-leave on the ground that he or she does not have a serious health condition.

NCE also contends that compliance with the proposed standard could subject employers to discrimination claims under the FMLA because workers covered by the standard may receive WRP consisting of paid leave, while other workers with serious health conditions who are unable to perform their job are entitled only to unpaid leave under the FMLA. NCE 123–124. The FMLA's anti-discrimination provision, however, does not sweep so broadly. It prohibits interference with the exercise of rights under that statute, 29 U.S.C. 2615(a)(1), and proscribes discrimination against an individual for having engaged in activity such as opposing unlawful practices under the statute, filing charges, or giving information or testifying in connection with FMLA proceedings or inquiries. 29 U.S.C. 2615(a)(2), (b). An employer who has placed employees on paid WRP-leave under the ergonomics standard has not, by that action, interfered with other employees' FMLA rights. Nor would its reason for not giving similar paid leave to those other employees—that the employees were outside the scope of the WRP provisions of the ergonomics standard—constitute a basis of prohibited discrimination under the FMLA (such as retaliation for protected activities).

d. Title VII of the Civil Rights Act of 1964 and the ADEA. Title VII prohibits employment practices and devices that discriminate on the basis of race, color, religion, sex, or national origin. The ADEA prohibits employment discrimination on the basis of age. The

Forum for a Responsible Ergonomics Standard contends that women and older workers are more susceptible to MSDs than younger persons and that the ergonomics standard will therefore encourage employers to violate these statutes by hiring a young, male-dominated workforce. Ex. 30–3845 at pp. 36–37.

These anti-discrimination statutes were adopted to combat the attitudes prevalent among many employers that older workers, or female workers, or minority workers, were not as qualified to do a job as well as young, white males. Through their enactment, Congress prohibited employers from relying on such outdated stereotypes rather than making hiring decisions on the basis of a worker's individual capabilities. See *Hazen Paper Co.* v. *Biggins,* 507 U.S. 604, 610 (1993) (''Congress promulgation of the ADEA was prompted by its concern that older workers were being deprived of employment on the basis of inaccurate and stigmatizing stereotypes.''); *Los Angeles Dept. of Water & Power* v. *Manhart,* 435 U.S. 702, 707 n. 13 (1978) (''In forbidding employers to discriminate against individuals because of their sex, Congress intended to strike at the entire spectrum of disparate treatment of men and women resulting from sex stereotypes.'').

In particular, these statutes preclude discriminatory hiring decisions based on perceived gender or age-based susceptibility to a safety or health risk inherent in the job. In *UAW* v. *Johnson Controls, Inc.,* 499 U.S. 187 (1991), the Supreme Court held that an employer's ''fetal protection policy'' violated Title VII. Under that policy, the employer refused to assign women to jobs involving lead exposure unless the women could show they were unable to become pregnant. The employer claimed that this policy was justified because lead in a pregnant woman's bloodstream could potentially harm the fetus. The Supreme Court held that the employer's concern that women who were or might become pregnant would be particularly susceptible to a health risk from lead exposure was not a valid reason to allow them to exclude such women from jobs for which they were qualified.

The rulemaking record shows that workers of both sexes and all ages suffer MSDs when exposed to high levels of the risk factors addressed by this standard. OSHA therefore does not believe that the rulemaking record supports the commenters' claim that this standard will provide any incentive to employers to violate Title VII and the ADEA. However, even if some employers believe they can gain some benefit by hiring only young, male workers, Title VII and the ADEA prohibit them from doing so on the basis that it will make compliance with the standard easier.

XII. Procedural Issues

I. Introduction

OSHA began seeking public participation in this rulemaking when it published an Advance Notice of Proposed Rulemaking (ANPR) in August 1992. The Agency received more than 250 comments in direct response to that notice. See Comments in Ex. 3. The next year OSHA conducted an extensive survey of employers to obtain information on the extent of existing ergonomics programs and practices in general industry. In 1994–1995, and again in 1998 and 1999, OSHA held a series of ''stakeholder meetings'' across the country where interested members of the public discussed with representatives of OSHA their experiences and opinions relating to ergonomics and ergonomic programs. See Ex. 26–1370. In some cases, OSHA even shared early drafts of regulatory text under consideration with participants in these meetings.

In developing the proposed standard, OSHA took account of all the information it had obtained during this period: the ANPR comments; the survey responses; and the stakeholders' views and experience, as well as its own enforcement experience and information gleaned from a comprehensive review of the relevant literature. In response to this input, OSHA revised its regulatory approach substantially from that reflected in its early drafts of a standard. In February 1999, as part of the review process required by the Small Business Regulatory Enforcement Fairness Act (SBREFA), 5 U.S.C. § 601 *et seq.*, OSHA released to the public a draft proposed Ergonomics Program standard (SBREFA draft) that reflected much of the regulatory approach of the proposal. The SBREFA draft was also made available on OSHA's website. OSHA received a large amount of feedback on this draft from the small entity representatives participating in the SBREFA process, and OSHA made a number of alterations to the draft based on that feedback. See Ex. 23.

As described in detail below, OSHA's official Notice of Proposed Rulemaking provided the public with additional opportunities to participate in the rulemaking. Specifically, OSHA established a 70 day pre-hearing comment period (later extended to 100 days), during which the public could comment and submit evidence on all aspects of the proposed standard. OSHA also scheduled a nine week informal public hearing, for interested parties to testify on the proposed standard. Finally, OSHA established a 90 day post-hearing comment period. The post-hearing comment period gave hearing participants 45 additional days to submit data and evidence, and 90 additional days to submit comments for consideration by OSHA. In sum, those individuals who participated in the informal public hearing had 216 days (more than seven months) after publication of the proposed rule to submit data and evidence to the rulemaking record for OSHA's consideration, and 261 days (nearly nine months) after publication of the proposed rule to submit briefs and arguments to the rulemaking record.

Although these procedures exceed the legal requirements for OSHA rulemaking and are consistent with the procedures used in past Agency rulemakings, a number of participants, primarily employer groups, have attacked them as inadequate. A major theme of these attacks is that the issues in this rulemaking are unprecedentedly complex, and that OSHA therefore should have provided extraordinary comment periods and other opportunities to challenge its preliminary conclusions. OSHA recognizes that the size of the record on some issues could have posed challenges, although by no means insurmountable ones, to rulemaking participants. OSHA responded to these challenges by making adjustments to the rulemaking schedule and to the procedures used in earlier rulemakings in order to provide interested parties with easier access to rulemaking materials (including extending Docket Office hours), and to ensure that the rulemaking proceeded in a fair and orderly manner.

II. The Adequacy of the Rulemaking Process

A. Length of the Pre-Hearing Comment Period

OSHA published its proposed Ergonomics Program standard on November 23, 1999. 64 FR 65768 (Nov. 23, 1999); see also 64 FR 73448 (Dec. 30, 1999) (publication of corrections notice). In the **Federal Register** notice, OSHA established a 70 day pre-hearing comment period to submit written comments and evidence on the proposed standard. *Id.* These materials were required to be postmarked by February 1, 2000. *Id.*

OSHA received a number of requests to extend the pre-hearing comment period and delay the informal public hearing. See *e.g.,* Letters in Ex. 33. In response to these requests, OSHA extended the pre-hearing comment period an additional 30 days, until March 2, 2000, and delayed the start of the informal public hearing by 20 days, until March 13, 2000. 65 FR 4795 (Feb. 1, 2000). This schedule gave interested parties a total of 100 days to submit pre-hearing comments on the proposed standard. OSHA also notified participants of a number of innovations in its filing and docket access procedures, so that parties would have as little difficulty as possible in reviewing the record and filing comments in the time allowed. See Ex. DC–423. For example, OSHA placed copies of the proposed rule, the full Health Effects section, and the full Preliminary Economic Analysis on its webpage and on CD–ROM. OSHA mailed a CD–ROM free of charge to all individuals who had participated in earlier stakeholder meetings and to any other interested party upon request.

The 100-day pre-hearing comment period was more than three times as long as that required by the OSH Act. The OSH Act only requires OSHA to give interested parties 30 days to comment on a proposed standard. 29 U.S.C. 655(2). OSHA's procedural regulations also state that a proposed rule must provide interested persons with 30 days in which to submit ''written data, views, and arguments, which shall be available for public inspection and copying.'' 29 CFR 1911.11(b)(3). See also Executive Order 12866, 58 FR 51735 (Sept. 30, 1993) (encouraging administrative agencies to provide a minimum 60 day pre-hearing comment period). The 100 day pre-hearing comment period provided here was more than adequate to meet all of these requirements.

This comment period is also consistent with past OSHA practice in rulemakings of this magnitude. In the Air Contaminants Rulemaking, OSHA proposed to lower the permissible exposure limits for over 400 hazardous substances, 54 FR 2332 (Jan. 19, 1989), an enormous undertaking by any measure. The Eleventh Circuit subsequently rejected a challenge to the 47 day pre-hearing comment period OSHA afforded in that rulemaking. *AFL–CIO* v. *OSHA,* 965 F.2d 962, 969 n.8 (11th Cir. 1992) (Air Contaminants) (''[W]e are unpersuaded that the time period allowed in this rulemaking was so insufficient as to prevent interested parties from commenting on the proposed rule.'').

Numerous other OSHA rulemakings have also included pre-hearing comment periods of similar length. For example:

- Tuberculosis—123 day pre-hearing comment period. 63 FR 5905 (Feb. 5, 1998).
- Butadiene—91 day pre-hearing comment period. 55 FR 42406 (Oct. 19, 1990).
- Bloodborne Pathogens—76 day pre-hearing comment period. 54 FR 23042 (May 30, 1989).
- Hazard Communication—60 day pre-hearing comment period. 48 FR 53280 (Nov. 25, 1983).

Most significantly, it is clear that the 100 day comment period provided the public with an adequate opportunity to comment on the proposed rule. The comprehensive and detailed nature of many of the pre-hearing comments OSHA received is itself compelling evidence of this fact. For example:

- The National Coalition on Ergonomics (NCE) submitted a 156 page comment, as well as attachments of 321 pages. Ex. 30–3956.
- The U.S. Chamber of Commerce (Chamber) submitted a 95 page comment, as well as attachments of 524 pages. Ex. 30–1722.
- Anheuser-Busch, Inc. and United Parcel Service, Inc. (UPS) submitted a 299 page comment, as well as attachments of 2007 pages. These attachments consisted of additional comment and evidence prepared by 23 expert witnesses. Ex. 32–241.
- The Union of Needletrades and Industrial Textile Employees (UNITE) submitted a 70 page comment, as well as attachments of 1078 pages. Ex. 32–198–4.
- The United Food and Commercial Workers Union (UFCW) submitted a 179 page comment, as well as attachments of 2218 pages. Ex. 32–210–2.

Although some of these submissions came from parties complaining that the comment period was inadequate, the comments listed above, as well as many others, demonstrated a thorough mastery of the proposal and preamble, as well as extensive familiarity with OSHA's Preliminary Economic Analysis, its Health Effects discussion, and much of the material in the record. See *e.g.,* Exs. 30–1722; 30–3956; 32–241. And a number of comments were submitted early, including the Chamber's 619 page comment, which was submitted on February 16, 2000, a full two weeks before the due date. See Ex. 30–1722.

Moreover, the pre-hearing comment period represented only one aspect of the public participation opportunities in this rulemaking. OSHA also scheduled nine weeks of informal public hearings and a 90 day post-hearing comment period on the proposed rule. Thus, those parties who filed Notices of Intent to Appear at the hearing had a total of 261 days (nearly nine months) from the date the proposal was issued to the end of the post-hearing comment period to comment on the proposed rule. OSHA believes that this period of time was more than adequate to allow interested parties an opportunity to review the record and submit meaningful comments.

In addition, OSHA's procedures typically provide that only parties who participated in an OSHA rulemaking hearing may file post-hearing submissions. But in this rule OSHA permitted trade associations or other groups who were eligible to file such comments to attach to their own submissions comments from their members who were not eligible to file on their own. Many interested parties (*e.g.,* members of the National Association of Manufacturers) who did not file a Notice of Intent to Appear, therefore, were able to submit post-hearing submissions through their trade association or other group. See *e.g.,* Letters in Ex. 500–1.

Moreover, many interested parties were familiar with the overall structure of the proposed rule before it was published on November 23, 1999. OSHA posted the SBREFA draft, which was similar to the proposed rule in many respects, on its website in February, 1999. Many interested parties, including small business owners, commented on the draft rule. See Ex. 23. In addition, OSHA had engaged interested parties in discussions on ergonomics issues for quite some time before publication of the proposed rule. See Discussion in Part II above. Many parties who commented on the proposed rule and participated in the informal public hearing were very familiar with the issues relevant to the rulemaking long before the pre-hearing comment period began.

For these reasons, OSHA does not agree with those commenters who complained that 100 days was an inadequate amount of time to analyze the rulemaking record fully and to submit meaningful comments on the proposal. A couple of commenters went so far as to claim that the 100 day pre-hearing comment period violated parties' due process rights. Ex. 30–3956, p. 141; 30–3865, pp. 33–4. The American Iron and Steel Institute (AISI) suggested that the OSH Act required OSHA to give a 30 day pre-hearing comment period for each hazard at issue in the rulemaking (*i.e.,* force, repetition,

awkward posture, static posture, contact stress, cold temperatures, and vibration); thus, AISI argued that OSHA was obligated to set a 210 day pre-hearing comment period. Ex. 500–223, p. 94. Many commenters noted as well that a number of holidays occurred during the pre-hearing comment period, and that these, as well as Year 2000 computer issues, made review and preparation of comments particularly difficult. See *e.g.,* Ex. 30–3865, p. 34; Letters in Exhibit 33. Finally, a number of commenters stated that OSHA's grant of a 30 day extension of time from 70 days to 100 days was not meaningful because it was not granted until January 27, 2000, a few days before pre-hearing comments were originally scheduled to be filed. See *e.g.,* Exs. 500–188, p. 6 n.3; 500–109; 30–3956, p. 142.

No party's due process rights were violated by the 100 day pre-hearing comment period. As shown above, the comment period was more than adequate for interested parties to review the record and submit pre-hearing comments. Nor does the OSH Act require OSHA to provide a 30 day pre-hearing comment period for each risk factor at issue. As explained above, the OSH Act provides for a minimum 30 day comment period for each ''proposed *rule* promulgating * * * an occupational safety or health standard.'' 29 U.S.C. 655(b)(2) (emphasis added). The OSH Act does not place a requirement upon OSHA to provide additional time for comment depending upon the number or types of hazards being regulated. See Air Contaminants, 965 F.2d at 969 n.8.

Furthermore, the occurrence of holidays during the pre-hearing comment period did not substantially affect the ability of parties to review the record and comment on the proposed rule. In fact, holidays accounted for only five days of the pre-hearing comment period. Similarly, OSHA does not believe that Year 2000 computer conversion issues substantially affected stakeholders' ability to comment on the proposed standard. Employers and other parties always devote resources to different areas of their enterprises at different times of the year. For example, when industry and labor are engaged in collective bargaining negotiations, employers and labor unions (including safety and health representatives) must devote additional resources (including time and money) to the negotiations. The time and resources devoted to these negotiations certainly ''conflict'' with other priorities of both parties. Yet both parties to the negotiations are able to continue to function during this period and to carry out their other responsibilities. These types of conflicts do not prevent interested parties from submitting meaningful comments on any particular proposed rule.

Finally, the extension of the pre-hearing comment period was not granted too late. OSHA originally believed that the 70 day pre-hearing comment period established in the proposal was sufficient to allow interested parties to comment meaningfully on the proposed standard. (The 70 day period was more than twice as long as that required by the OSH Act, and longer than the 60 day minimum period recommended by Executive Order 12866). OSHA seriously considered the requests it received to extend the initial 70 day pre-hearing comment period, however, and ultimately decided to grant the 30 day extension.

OSHA granted the extension on January 27, 2000, a few days before written comments were originally scheduled to be filed. In addition to publishing notice of the extension in the **Federal Register** on February 1, 2000, 65 FR 4795 (Feb. 1, 2000), OSHA issued a press release to inform the public that the comment period had been extended and placed the press release on its web-page. See *http://www.osha.gov/media/oshnews/jan00/national-20000127.html.* Some commenters thanked OSHA for granting the extension. See Exs. 32–21–1, p.9; 500–1–26; 30–4496, p. 1. The 30 day extension was useful in allowing interested parties additional time to review the record and comment on the proposed rule.

In fact, OSHA often grants extensions of comment periods near the end of the original period. For example, in the Butadiene rulemaking, OSHA granted an extension on the final day of the original pre-hearing comment period. 55 FR 42406 (Oct. 19, 1990). Similarly, in the tuberculosis rulemaking, OSHA granted an extension a mere 12 days before the close of the original pre-hearing comment period. 63 FR 5905 (Feb. 5, 1998). Indeed, often it is only toward the end of any filing period that a need to extend becomes clear. It would hardly be logical to permit Agencies to respond to this need only if they did so several weeks before the close of the original comment period.

B. There Was Adequate Opportunity for Participants To Prepare for and Participate in the Informal Public Hearing

1. The Hearing Procedures and the Hearing Schedule

In the November 23, 1999 **Federal Register** notice, OSHA also scheduled an informal public hearing to provide interested parties another opportunity to comment on the proposed standard. 64 FR 65768 (Nov. 23, 1999). Participants in the hearing could present testimony and ask questions of OSHA and other public witnesses. OSHA scheduled the informal public hearing for three cities: Washington, DC; Portland, OR; and Chicago, IL. Id. at 65769. The hearing was originally scheduled to begin on February 22, 2000, and OSHA required participants to file Notices of Intent to Appear by January 24, 2000. *Id.* at 65768. When OSHA extended the pre-hearing comment period, it also delayed the start of the hearing until March 13, 2000, 11 days after the close of the pre-hearing written comment period. 65 FR 4795 (Feb. 1, 2000). In addition, because it received more than 400 Notices of Intent to Appear at the hearing, OSHA added an additional 7 days to the hearing in Washington, DC and Portland, OR, in order to accommodate all members of the public who sought to testify. See 65 FR 11948 (Mar. 7, 2000); 65 FR 19702 (Apr. 12, 2000).

On February 25, 2000, the Assistant Secretary issued special hearing procedures to ensure that the hearing proceeded in a fair, orderly, and timely manner. 65 FR 11948 (Mar. 7, 2000). In doing so, the Assistant Secretary acted pursuant to Section 1911.4 of OSHA's procedural regulations governing informal public hearings, which allows the Assistant Secretary, upon reasonable notice, to specify additional or alternative hearing procedures for good cause. 29 CFR 1911.4. OSHA published the Hearing Procedures in the **Federal Register**, mailed them to every hearing participant, and placed them on its web-page. The Assistant Secretary and the Chief Administrative Law Judge also met with interested members of the public to describe and answer questions about the conduct of the hearing. Representatives of the U.S. Chamber of Commerce, United Parcel Service, Inc., the National Coalition on Ergonomics, and the AFL–CIO attended this meeting.

The Hearing Procedures described the nature of the informal public hearing, as well as the procedural rules governing the hearing. *Id.* The Hearing Procedures gave the locations and scheduled times for the different hearing sites; they also permitted the presiding Administrative Law Judge to extend the hearing past the scheduled closing time for any particular day ''to assure orderly development of the record.'' *Id.*

The Hearing Procedures emphasized that the hearing was a legislative-type hearing, not an adjudicative one. *Id.* Thus, neither the rules of evidence nor other procedural rules governing

adjudications applied. *Id.* The hearing was intended to provide an opportunity for persons who filed a Notice of Intent to Appear to testify and question witnesses. *Id.* Such participation, however, was designed to ''facilitate the development of a clear, accurate and complete record, while assuring fairness and due process.'' *Id.* ''The intent is to provide an opportunity for effective oral presentation by interested persons, and to avoid procedures which might unduly impede or protract the rulemaking process * * * '' *Id.* at 11947–48.

The Procedures also described the conduct of the rulemaking hearing. First, a panel of OSHA representatives would be available to answer questions on the proposed standard for two full days, on March 13 and 14, 2000. *Id.* at 11948. The Hearing Procedures explained the process for handling the questioning of the OSHA panel, to assure that the questioning time was distributed in a fair and equitable manner. *Id.* They also prescribed the manner of questioning of OSHA's expert witnesses and a panel of witnesses from the National Institute of Occupational Safety and Health (NIOSH). *Id.*

The Hearing Procedures directed public participants to use their oral presentations to summarize and clarify their written submissions rather than to read those submissions into the record. *Id.* The Procedures provided that the Administrative Law Judge should allocate time for questioning of public witnesses as appropriate; however, the procedures required that the ''testimony and questioning of all witnesses scheduled for each day [be] completed that day.'' *Id.* The Procedures further encouraged participants having similar interests to ''designate one representative [to] conduct the questioning on their behalf.'' *Id.*

Finally, the Hearing Procedures established a 45 day post-hearing period in which participants could submit additional information and data to the record, and a 90-day post-hearing period in which they could submit briefs and arguments on the proposed standard. *Id.*

Along with the Hearing Procedures, OSHA distributed a schedule for witness testimony at the informal public hearing. *See* Ex. 502–476. OSHA sent the initial schedule for the Washington, DC and Chicago, IL locations to hearing participants on February 26, 2000 (with the Hearing Procedures), and posted it on the OSHA web page. OSHA sent the schedule for the Portland, OR location to the Portland participants on March 8, 2000, and also posted it on the OSHA web page. The schedules listed the dates and times for the testimony of the expert witnesses who were to testify on behalf of OSHA, the panel of experts from NIOSH, and each public witness who had filed a Notice of Intent to Appear. *Id.*

The schedule organized the public witnesses into panels, and allotted each witness an amount of time to testify based upon the time the witness had requested. *Id.* The Hearing Procedures established the following format for questioning of the public witnesses: each public witness on a panel would present testimony; after all of the witnesses on the panel presented, the panel as a group would answer questions from members of the public and OSHA. 65 FR 11948–49 (Mar. 7, 2000). The Hearing Procedures, however, also gave the presiding Administrative Law Judge authority to allocate the time for questioning of witnesses in a different manner, as he deemed appropriate. *Id.* at 11949. This provided a fair and orderly process for questioning the public witnesses while allowing flexibility to accommodate participants' desire for more or less questioning of certain witnesses. *See e.g.,* Tr. pp. 9043; 9378–79; 13345.

After OSHA published the initial schedule, a substantial number of participants requested that OSHA alter the hearing schedule. OSHA accommodated these individuals to the extent possible. Some examples of the accommodations made for various hearing participants included:

- American College of Occupational and Environmental Medicine —Rescheduled from 4/13/2000 to 5/11/2000.
- American Iron and Steel Institute—Rescheduled from 4/07/2000 to 4/18/2000.
- American Society of Safety Engineers—Rescheduled from 5/09/2000 to 4/21/2000.
- International Order of the Golden Rule—Rescheduled from 4/07/2000 to 4/12/2000.
- Levi-Strauss—Rescheduled from 4/18/2000 to 5/04/2000.
- National Automobile Dealers Association—Rescheduled from 4/13/2000 to 4/14/2000.
- Association for Suppliers of Printing, Publishing, and Converting Technologies—Rescheduled from 3/31/2000 to 5/09/2000.
- Screenprinting and Graphic Imaging Association International—Rescheduled from 3/22/2000 to 4/12/2000.
- UniSea Inc.—Rescheduled from 4/27/2000 to 5/02/2000.
- Three UPS expert witnesses—Rescheduled from 4/2000 to 5/10/2000.

See Ex. 502–476. Throughout the informal public hearing, OSHA continued to work with hearing participants to try to accommodate their schedules. As OSHA made changes to the hearing schedule, OSHA posted the changes on its web page and often announced them at the beginning or end of a hearing day. *See e.g.,* Tr. pp. 7161; 7567; 13121; 13531.

The informal public hearing began on March 13, 2000 in Washington, DC and ended on May 15, 2000. OSHA's Director of the Safety Standards Program Directorate (Director) made a short statement at the beginning of the hearing. For the rest of the first two days of the hearing, a panel of representatives from OSHA and the Solicitor of Labor (OSHA panel), headed by the Director, answered questions on ergonomics generally and on the proposed standard specifically. In total, the OSHA panel answered questions for approximately 16 hours. *See* Tr. pp. 1–5–819.

As established in the Hearing Procedures, OSHA allowed each member of the public who filed a Notice of Intent to Appear to question the OSHA panel. In order to accommodate the large number of individuals who wished to question the OSHA panel, the Hearing Procedures provided that the questioning occur in ''rounds.'' In total, there were four rounds of questioning of the OSHA panel; thus, questioners were able to question at four different times over the two days. The amount of time allotted for questioners in each round was the following:

- Round 1— Ten minutes per questioner. Tr. p. 1–27.
- Round 2— 20 minutes per questioner. Tr. p. 1–244.
- Round 3— 20 minutes per questioner. Tr. p. 615.
- Round 4— 15 minutes per questioner. Tr. p. 771.

Thus, each member of the public had up to one hour and five minutes to question the OSHA panel.

After the first two days of the hearing, 28 OSHA expert witnesses testified about various aspects of ergonomics, MSDs, and other issues raised by the proposed rule. Ex. 502–476. A panel of representatives from NIOSH also testified about the causes and prevention of ergonomic injuries. *Id.*

The OSHA expert witnesses were grouped into subject-matter panels. Generally, each expert provided affirmative testimony for about 15 minutes (45 minutes per panel), and the panel answered questions for about two hours. In some instances, panels answered questions for approximately three hours. *See e.g.,* Ex. 502–476,

Testimony of Wednesday, March 15, 2000; March 20, 2000; March 21, 2000.

During the first two days of testimony by OSHA's experts, the questioning followed the same format as the questioning of the OSHA panel. After the first two days of testimony, however, the Administrative Law Judge altered the allocation of time so that employer representatives collectively, and labor representatives collectively, were each given approximately 40% of the time to ask questions, and OSHA was assigned approximately the remaining 20%. Questioners who did not represent either employers or labor were allotted proportional amounts of time from industry and labor's time. Tr. pp. 1774–75; 1780–1790.

OSHA's expert witnesses testified from Wednesday, March 15, 2000, through Tuesday morning, March 21, 2000. *See* Ex. 502–476. In order to maximize the public's time to question these experts, OSHA encouraged the witnesses to shorten their affirmative presentations, and ceded some of its own time for questioning to industry and labor. *See* Tr. pp. 1791; 1816; 2087; 2496; 2287–88.

A panel of NIOSH experts also testified during the first week of the hearing, on Friday, March 17, 2000. *See* Ex. 502–476. NIOSH was scheduled to appear for 4½ hours, and the public questioners, including both labor and industry representatives, had been allocated 3½ hours for questioning. *See* Ex. 502–476. However, the questioners used only 2 hours and forty-five minutes of this time. *See* Tr. p. 2125.

Public witnesses testified during the remainder of the nine weeks of the informal public hearing. After a panel of public witnesses presented testimony, the witnesses were available for questioning by members of the public and OSHA. *See* Ex. 502–476. The Administrative Law Judge presiding over the hearing on any particular day exercised discretion in terms of how the testimony and questioning of the public witnesses would proceed. On a few occasions the presiding Administrative Law Judge admitted into the rulemaking record evidence and testimony that were not submitted in accordance with the hearing procedures. *See* Tr. pp. 1095–97; 7168–73. Such allowances by the Presiding Officer were appropriate under the hearing procedures in order to ensure a clear, complete, and accurate rulemaking record. With respect to the allocation of time for questioning of the public witnesses, in the vast majority of instances the questioning proceeded in a similar format to that established during the questioning of OSHA's expert witnesses (*i.e.,* dividing the allotted time among industry, labor, and OSHA).

OSHA scheduled appearance times for all of the more than 400 parties who filed Notices of Intent to Appear at the hearing. *Id.* More than 100 of these parties, however, canceled their scheduled testimony. Many of these parties did not notify OSHA of their cancellations, or did so at the last minute, so that OSHA was often not able to adjust the schedule to allow more time for other witnesses. See *e.g.,* Tr. pp. 3138; 9379; 12036–12041.

2. Adequacy of the Procedures

A number of participants complained that the 11 days between the end of the comment period and the beginning of the hearing was too short to allow them to participate meaningfully in the rulemaking. *See* Exs. 500–188, p. 6; 500–197, p. IV–5; 30–3956, p. 142. OSHA disagrees. There is no statutory requirement that OSHA allow any particular amount of time between the close of the comment period and the public hearing. OSHA's own procedural regulations, however, require a 10 day period between the close of the pre-hearing comment period and the hearing. 29 CFR 1911.11(b)(4). The 11-day period OSHA provided in this rulemaking was consistent with those regulations.

During this period, OSHA made unprecedented efforts to assist participants in preparing for the hearing. OSHA extended its Docket Office hours and established a separate ergonomics reading room. See Ex. DC–423. It also made Docket Office staff available to help individuals locate materials quickly and efficiently. Interested parties were able to review the materials submitted to the rulemaking record as soon as they were received by OSHA.

After the schedule for the Washington, DC and Chicago, IL hearing locations was issued on February 26, hearing participants could use it to utilize their own preparation period most effectively. And hearing participants had no need to read each others' comments to prepare for their own questioning of the OSHA panel. Parties had more than 100 days to prepare for this process. In addition, many hearing participants were already familiar with the NIOSH and OSHA expert witnesses and with the substance of their testimony. One of the participants who complained repeatedly that there was inadequate time to prepare for the public hearing had, in fact, cross-examined some of the expert witnesses on similar issues in earlier OSHA enforcement litigation. See Attachments to Ex. 30–1722. OSHA therefore disagrees with those commenters who stated that 11 days was insufficient to review the comments and testimony submitted, or to prepare for questioning of all of the witnesses who were scheduled to appear over the nine weeks of hearings. See Exs. 500–188, p. 6; 500–197, p. IV–5; 30–3956, p. 142.

The conduct of the hearing was also consistent with the OSH Act and OSHA's procedural regulations. Although this legislative type hearing is informal, OSHA's procedural regulations provide for more than the bare essentials of informal rulemaking and include: (1) An ALJ to preside at the hearing; (2) ''an *opportunity* for cross-examination on *crucial issues*,'' and (3) a verbatim transcript of the hearing. 29 CFR 1911.15(b) (emphasis added). Indeed, OSHA rulemakings differ from the rulemakings of other federal agencies in that members of the public can question OSHA's expert witnesses and each other. The procedural regulations also permit the Assistant Secretary for OSHA, upon reasonable notice, to ''prescribe additional or alternative procedural requirements:

- In order to expedite the conduct of the proceeding;
- In order to provide greater protection to interested persons whenever it is found necessary or appropriate to do so; or
- For any other good cause which may be consistent with the applicable laws.''

See 29 CFR 1911.4.

Here, as it frequently does, OSHA scheduled the informal public hearing when it published the proposed rule on November 23, 1999. The informal public hearing complied with OSHA's procedural regulations: (1) An Administrative Law Judge presided over it; (2) interested parties were given an opportunity to cross-examine witnesses on crucial issues; (3) OSHA provided transcripts of the proceedings; and (4) OSHA designed procedures that effectuated the stated intent of OSHA informal hearings, *i.e.,* ''to provide an opportunity for effective oral presentation by interested persons which can be carried out with expedition. * * *'' 29 CFR 1911.15(a)(3).

Due to the large number of individuals who filed Notices of Intent to Appear, the Assistant Secretary also had ''good cause'' to issue special hearing procedures to ensure that the hearing proceeded in a fair and orderly manner. The Assistant Secretary issued the Hearing Procedures on February 25, 2000, giving hearing participants

reasonable notice. OSHA mailed the Hearing Procedures the very next day to all individuals who had filed Notices of Intent to Appear, published them in the **Federal Register**, and posted them on the OSHA web page. In addition, the Assistant Secretary and the Chief Administrative Law Judge held a meeting with interested parties on March 7, 2000, in order to discuss the procedures and answer any questions from the participants.

The conduct of the informal hearing was also consistent with that of other OSHA rulemakings. For example, in the Tuberculosis rulemaking, the Pre-hearing Guidelines signed by the Administrative Law Judge laid out the following similar parameters:

- The purpose of the hearing was for information gathering and clarification; the hearing was not an adjudicative one but rather an informal administrative proceeding.
- Each hearing day would end when the scheduled testimony and questions for the day had been completed.
- Because written submissions were made a part of the rulemaking record, public witnesses ''should'' use their oral testimony to summarize and clarify their written submissions.
- Questioning of public witnesses should be limited to 15 minutes, but the presiding Administrative Law Judge could alter the schedule as appropriate to allow more time for questioning of a particular witness.
- If the hearing were to fall significantly behind schedule, the presiding Administrative Law Judge could further restrict the questioning or order further consolidation of the questioning.
- Participants having similar interests should, if possible, designate one representative to conduct the questioning on their behalf.
- If an organization were represented by more than one questioner, only one person should question a witness on a particular topic area.
- Questions should be brief and should be designed to clarify a presentation or elicit information within the competence or expertise of the witness.
- A tentative 120 day post-hearing comment period was established.

Docket H–371, Ex. 24; *See also* Pre-hearing Guidelines for Hearing on Employer Payment for Personal Protective Equipment, Docket S–042, Ex. 17 (including same); Mintz, *OSHA: History, Law, and Policy* 66–7 (BNA 1984). As is clear from the above, OSHA did not deviate meaningfully in the ergonomics rulemaking hearing from the hearing procedures used in past OSHA rulemakings.

For these reasons, OSHA does not agree with those commenters who stated that the informal public hearing was not adequate to provide interested parties an opportunity to present additional evidence, and to cross-examine public witnesses and OSHA on crucial issues. *See* Exs. 500–188, pp. 6–10; 500–197, pp. IV–11–14. On the contrary, OSHA believes that the process struck an appropriate balance: it gave interested parties the opportunity to present testimony, to question OSHA, and to question other members of the public, while ensuring that the proceedings would proceed in an orderly manner.

Specific objections included the complaints of some participants that they did not have enough time to question the OSHA panel and that OSHA did not disclose who would be representing it on the panel until the day the informal public hearing began. *See e.g.,* Tr. pp. 1–42–43. A few of these commenters, United Parcel Service, Inc., the National Coalition on Ergonomics, and the U.S. Chamber of Commerce, requested that the OSHA panel return for additional questioning at the end of the informal public hearing. Ex. DC–424. Before the Assistant Secretary could respond to that request, however, it was modified (and presumably withdrawn) on April 11, 2000. *Id.; see also* Tr. pp. 17956–58.

In any event, OSHA believes that the hearing participants had more than an adequate opportunity to question the OSHA panel on the proposed rule. The OSHA panel answered questions for approximately 16 hours; those participants who questioned the panel for each round had over one hour to question the panel.

Like other administrative agencies, OSHA explains its reasons for issuing a proposed rule in the preamble to the proposal and other supporting documentation. OSHA is not required by any law or regulation to explain its rationale further at the informal public hearing. OSHA, however, generally spends some time at the beginning of rulemaking hearings answering a few questions from participants. In the past, OSHA usually made a panel available for a few hours at the beginning of the hearing. For example, in both the Tuberculosis and Access to Employee Exposure to Medical Records hearings, the OSHA panel answered questions for a couple of hours at the beginning of the hearings. *See* Docket H–022B, Ex. 171A; Docket H–371, Ex. 25A. Recognizing that there were a number of parties who wished to question the Agency more extensively in this case, however, OSHA deviated from its past practice and set aside two full days for the panel to answer questions on the proposal. *See* Ex. 502–476.

Furthermore, in order to ensure that the questioning was evenly distributed among the participants, OSHA set up a format for the questioning. OSHA established several ''rounds'' of questioning. Although there were a large number of individuals who wished to question OSHA during the first two rounds, only a few had remaining questions in rounds three and four. In fact, by the final round of questioning only three questioners (representing Boral Bricks, NCE, and the Chamber) asked questions of OSHA. Tr. pp. 771–819. Those parties who utilized their full time in every round had over one hour total to question OSHA. OSHA believes that this schedule provided adequate time for interested parties to question the Agency, while not unduly protracting the rulemaking process.

Finally, OSHA did not prejudice any member of the public by waiting until the day of the hearing to disclose the members of the OSHA panel. The purpose of the first two days of the informal public hearing was to allow interested parties an opportunity to question OSHA about its proposed rule; the purpose was not to provide an opportunity to question individuals about their views of the proposed rule. The panel members were made available to answer questions about the proposed rule on behalf of OSHA. They did not appear to express personal opinions about ergonomics or the proposed standard. Thus, there is no validity to the implication that questioners should have had additional time to prepare for the kind of credibility-based cross examination that would be appropriate in adversarial litigation. *See e.g.,* Tr. pp. 539–41.

Some participants also objected during the hearing that there was not enough time to question the government's expert witnesses. Tr. pp. 936–941; 1438–1444. The Chamber, for example, complained that OSHA only gave ''industry as a whole under two hours of cross-examination'' to question the NIOSH panel. Ex. 500–188, p. 7 (emphasis in original).

Once again, OSHA believes that the amount of time allotted for questioning its expert witnesses was reasonable and provided interested parties adequate time to ask questions, clarify presentations, and elicit new information, while not unduly protracting the rulemaking process. Each panel was available for questioning for over two hours (and on many occasions for over three hours).

See Ex. 502–476. This amount of time was longer than that provided for questioning of most other members of the public, and OSHA believes it was sufficient to allow members of the public to question the experts on ''crucial issues.''

OSHA also encouraged its expert witnesses to provide only brief oral presentations. Some of them gave only short opening statements. *See e.g.,* Tr. pp. 2361–65, 2366–69, 2369–72; *see also* Tr. pp. 1816 (Industry questioner thanking panel of OSHA expert witnesses for abbreviating testimony). On other occasions, OSHA ceded the Agency's time to the public for questioning. *See e.g.,* Tr. pp. 2087; 2496; 2287–88. Contrary to the arguments of UPS and NCE that the procedures were somehow designed to ''minimize time available for industry questioning,'' Ex. 500–197. p. IV–13, OSHA's efforts in fact *increased* the amount of time for public questioning of the expert witnesses.

Third, the Administrative Law Judge changed the questioning format after the second day of testimony by the government experts in order to allow questioning to proceed more efficiently. To ensure an even distribution of questioning, the Administrative Law Judge divided the time available for questioning among the three broad categories of questioners—labor, industry, and OSHA. The Hearing Procedures issued by the Assistant Secretary gave the Administrative Law Judge this authority; in fact, the Procedures envisioned the exercise of this authority in just such a situation. See 65 FR 11948 (Mar. 7, 2000). OSHA believes that this revision in format allowed all interested participants an even greater opportunity to question OSHA's expert witnesses.

Finally, OSHA finds completely unfounded the allegation made repeatedly by some commenters (including the Chamber) that there was insufficient time to question the NIOSH panel. *See e.g.,* Ex. 500–188, p. 7. OSHA allotted an entire afternoon, 3½ hours, for questioning of the NIOSH panel. (In total, OSHA scheduled NIOSH for a 4½ hour block of time to present its testimony and respond to questions.) In fact, the hearing was recessed early on that day because there were no questions left for the NIOSH panel to answer. *See* Tr. p. 2125. The time allotted for questioning of the NIOSH panel was more than adequate; if anything, OSHA scheduled too much time for the questioning of this panel.

OSHA also believes that all interested parties had an adequate opportunity to present their affirmative testimony. *See e.g.,* Tr. pp. 16851–52. First, as OSHA stated in its Hearing Procedures, public witnesses were asked to summarize their written submissions. See 65 FR 11948–49 (Mar. 7, 2000). Because written submissions were already part of the rulemaking record and available for all to review beforehand, there was no reason for participants also to read those submissions into the record.

Second, OSHA established the amount of time for public testimony based on the amount of time witnesses requested in their Notices of Intent to Appear. Witnesses who requested only 10 minutes to testify were typically scheduled for the entire amount of time they requested in their Notice. If individuals requested 15 minutes, OSHA typically scheduled them for 10 minutes of affirmative testimony. If they requested 20 minutes, OSHA typically scheduled them for 15 minutes. For witnesses who requested longer periods of time, OSHA scheduled time for affirmative testimony based upon the number of topics to be addressed by a hearing participant. Thus, UPS filed Notices of Intent to Appear for over 20 individuals and requested varying amounts of time to cover a wide range of subject areas. Ex. 32–241–1. OSHA allotted these witnesses 2½ days (22 hours and forty-five minutes), a significant amount of time by any measure, to present their testimony and respond to questions. Ex. 502–476. OSHA believes that the amount of time given the public witnesses to testify met the goal of allowing interested parties to summarize their main points, while not ''unduly protracting'' the rulemaking process.

Nonetheless, some participants objected throughout the hearing that there was not enough time to question public witnesses. *See* Tr. pp. 8265; 3500; 6062. NCE *et al.,* for example, stated that OSHA improperly ''suspended the rules that allow for [cross-examination]'' and asked leading questions of certain witnesses in a manner that did not develop the rulemaking record. Ex. 500–197, p. IV–11, 15–16.

OSHA did not suspend any rules allowing for cross-examination. In fact, as described in detail above, the hearing procedures expressly provided for cross-examination. The hearing was not a trial, however, and no OSHA procedural regulation gives the public unlimited time to question witnesses. The public's desire to question witnesses must be balanced against the primary function of the hearing: to assist OSHA in gathering evidence that will help the Agency determine whether and how to regulate. Those parties who complained that their ability to ''cross-examine'' certain witnesses was improperly curtailed misunderstood the nature and purpose of OSHA's informal rulemaking hearings.

It is clear that the public witnesses had adequate time to question each other. The schedule typically allowed a panel of witnesses to be questioned for one hour. In other words, for every hour of testimony, OSHA allowed an hour of questioning. Consistent with its decision to allow much more time for questioning of the government expert witnesses, OSHA also allowed for greater questioning of public witnesses who were particularly well-known in the field of ergonomics.

- Dr. Don Chaffin, a Professor of Industrial Engineering at the University of Michigan, former Director of its Center for Ergonomic Studies, and author of numerous articles on ergonomics (*See* Ex. 500–5), appeared on a panel by himself and had only a short affirmative presentation; OSHA ceded its own questioning time to allow for more questions from the public. Tr. p. 8264.
- Dr. Gary Franklin, a physician who treats patients with MSDs and has written extensively on ergonomics and MSDs, appeared on a panel by himself and only gave a short affirmative presentation; the amount of time available for questioning by industry representative was significantly increased by the presiding Administrative Law Judge. *See* Tr. pp. 13340–13415.
- Dr. Barbara Silverstein, Director of the Safety and Health Assessment and Research Program in Washington State and author of numerous articles on ergonomics and MSDs, appeared on a panel with one other individual and had only a short affirmative presentation; members of the public had one hour to question the two witnesses. *See* Ex. 502–476.

Second, OSHA repeatedly ceded to the public its own questioning time to allow for more questioning by public participants. *See e.g.,* Tr. pp. 8264; 10546; 17602–03. The Administrative Law Judges also often adjusted the schedule to allow more time for questioning of witnesses when interested members of the public had remaining questions. *See e.g.,* Tr. pp. 8263–66; 13345; 13366; 13380; 13415.

The time available for questioning could have been substantially increased had more scheduled witnesses notified OSHA in advance of their intent not to appear. As stated above, over 100 witnesses canceled their appearances (amounting to approximately one week of scheduled hearing time), often with no advance notice. This included many of the same parties who objected most vigorously to the length of the questioning time and would have been expected to be most anxious to assist OSHA in increasing that time. *See e.g.,* Tr. pp. 3138; 12036–12041. For

example, UPS and its expert witnesses requested over 20 hours to present affirmative testimony. OSHA scheduled almost 23 hours for UPS testimony and questioning. UPS, however, canceled all but six of those witnesses. OSHA was unable to fill that time; this resulted in approximately two days during the hearing where no testimony or questioning occurred. *See* Ex. 502–476. Similarly:

- Keller & Heckman LLP requested 40 minutes to testify and canceled its appearance. *See* Exs. 32–215; 32–215–1.
- Fed Ex Corporation and its subsidiaries requested 100 minutes to testify and canceled their appearances. *See* Exs. 32–203; 32–205; 32–208; 32–209; 32–208–2.
- NCE's economic task force requested 130 minutes to testify and canceled its appearance. *See* Ex. 32–375; Tr. pp. 12036–41.
- The Rubber Manufacturers Association requested 45 minutes to testify and canceled its appearance. *See* Ex. 32–242; Tr. p. 3138.

All of these entities, or representatives of these entities, objected to the amount of time allotted for cross-examination of witnesses. See Ex. 500–197 section IV; Tr. p. 2303.

NCE *et al.*contended that OSHA further reduced the time for the public questioning of witnesses by using its own questioning time ineffectively. Ex. 500–197, IV–14–15. But many participants in the hearing complained that others asked irrelevant questions, wasted time, and otherwise failed to develop the record efficiently. The AFL–CIO pointed to an exchange in which a UPS lawyer spent several transcript pages attempting, unsuccessfully, to elicit a particular response from an AFL–CIO witness. Ex. 500–218, pp. 168–170. But this merely highlights that one participant in a rulemaking may believe that certain questions are of relevance, while another participant may think precisely the opposite. OSHA designed the informal public hearing to give both itself and the hearing participants the opportunity to question members of the public in a manner each believed would best develop the rulemaking record. OSHA believes that it did this effectively throughout the informal hearing.

The same participants also complained that ''OSHA withheld the hearing transcript from the rulemaking's participants'' and that the ''transcripts were not provided until the hearings were ended.'' Ex. 500–197, p. IV–17; see also Ex. 500–109. However, OSHA did not withhold the transcripts from the hearing participants; nor did OSHA wait until the end of the proceedings to make the transcripts available. First, during the initial week of the hearing, OSHA informed participants that they could contact the reporter directly to receive copies of the hearing transcripts. Tr. p. 936. Second, on May 3, 2000, OSHA placed on its web page unofficial copies of the hearing transcripts. Third, on May 30, 2000, OSHA made the official transcripts available on its web-page. OSHA placed paper copies of the official transcripts in the Docket Office a few days later.

There is no statutory, regulatory, or other authority requiring that OSHA go to such lengths to provide copies of the transcripts to the public. OSHA's procedural regulations state only that transcripts ''shall be available to any interested person upon such terms as the presiding officer may provide.'' *See* 29 CFR 1911.15(b)(3). OSHA's efforts to make the transcripts available certainly exceeded what is required by its procedural regulations and was more than adequate to allow parties to review transcripts of the proceedings promptly and in a meaningful way.

C. Availability of Record Material in the Docket

When it issued the proposal, OSHA placed in the rulemaking docket a large amount of material and evidence. Throughout the rulemaking, OSHA received additional evidence, both from rulemaking participants and through its own efforts. This entire body of evidence forms the basis for the issuance of this final standard, and OSHA took unprecedented steps to ensure that all of it was available for public inspection.

The OSHA Docket Office (Docket Office) provides a number of ways to review and access materials submitted. First and foremost, the Docket Office maintains hard copies of all documents submitted to the rulemaking record and places them on a central shelf in the Docket Office reading room. Any interested party can view and copy these documents, consistent with applicable copyright laws. Docket Office staff are always available to help interested parties find and obtain rulemaking materials. Until recently, this method was the only way to access an OSHA rulemaking docket.

Recently, however, OSHA has been exploring methods of using technology to make access to its dockets even more convenient. For example, OSHA began a process of scanning all materials into an electronic database. This permits interested parties to view documents in the database, search for documents submitted, and print copies of the documents. OSHA intends this system to provide an easier means to view materials submitted to its rulemaking records.

Because OSHA anticipated that there would be a large amount of material submitted to the docket during this rulemaking, the Agency implemented special procedures to ensure timely and convenient access to the docket. For example, OSHA made the proposed rule and preamble, the Preliminary Economic Analysis, and the full Health Effects sections available on its web page and on CD–ROM. In fact, OSHA mailed a CD–ROM containing this information free of charge to all parties who participated in the stakeholder meetings OSHA held before issuance of the proposed rule and to any other interested party upon request.

OSHA also extended its Docket Office hours by 3 hours a day, and designated an area in the Docket Office as an ''ergonomics reading room,'' where parties could review docket submissions as soon as they were received by the Agency. Ex. DC–423. In addition, OSHA moved people from other positions in the Agency to process public comments and scan the material into the computer database as quickly as possible. These steps, which exceeded any legal obligations and went far beyond OSHA's own past practice, were more than adequate to ensure interested parties a meaningful opportunity to comment on the proposed rule.

Although an administrative agency engaged in rulemaking must make ''critical factual material * * * used to support the agency's position'' available to the public for review in a rulemaking proceeding, *Air Transport Ass'n.* v. *FAA*, 169 F.3d 1, 7 (D.C. Cir. 1999), agencies generally are not required to make the material ''available'' in any particular format, so long as the public has an opportunity to review the material during the rulemaking.

There can be no question that OSHA made the material ''available'' here within the meaning of this requirement. With only a few exceptions, OSHA placed all documents cited in the preamble to the Proposal in the Docket Office by November 23, 1999—the date the proposal was published. OSHA also scanned the documents into a computer database to allow interested parties to view, search, and print copies of the documents more efficiently. Docket Office staff were available to help interested parties in searching the computer database and locating particular documents. See Ex. 30–3956, p. 133 (''[T]he Docket Office staff were extraordinarily helpful in attempting to

assist us in gaining access to OSHA's data, even to the extent of allowing us a dedicated work station in the docket office (subject, of course, to use by OSHA staff in carrying out their projects).''). But OSHA did not design the database to serve as the primary mechanism for reviewing the rulemaking record; it is an additional convenience for the public.

In fact the computer database for viewing, searching, and printing the record is relatively new technology in the context of OSHA's rulemakings. Similarly, OSHA has not previously made documents available on CD–ROM and the web page. Extending the hours the Docket Office was open to allow the public greater access to the rulemaking record was also not commonplace in earlier rulemakings; the Agency also does not typically dedicate a special area of the Docket Office to serve as a reading room. Thus, in numerous earlier rulemakings, interested parties reviewed and copied (as necessary) the paper copies of documents submitted to the record of a particular rulemaking. The extraordinary efforts made in this case not only exceeded any applicable legal requirements, they were an appropriate response to the comments of some parties that the number of issues involved in the rulemaking required additional accommodations. *See e.g.,* Ex. 500–223, p. 94.

For these reasons, OSHA does not agree with those commenters who contended that underlying record material was not available to interested parties for their review. NCE, for example, alleged that ''numerous documents were missing or unavailable because they had been sent out for photocopying, including the 1100 page Preliminary Economic and Regulatory Flexibility analysis and approximately 500 pages of associated materials offered in support of the Agency's conclusions,'' Ex. 30–3956, p. 133, and that Exhibits 28–3, 28–4, 28–5, and 28–6 were not available for review on November 23, 1999. Ex. 30–3956, Appendix IV. NCE also made a number of other attacks on the integrity of the record and on OSHA's provision of access to it:

- OSHA generally relied upon additional underlying data that it did not make available to the public.
- There was only one high speed printer for use in the OSHA docket office, and that printer takes approximately two hours to print 800 pages.
- The Docket Office only stays open for 6 hours a day.
- The computer systems and printers were not operating perfectly—there were occasional computer and printer failures.
- OSHA rejected a request for electronic copies of the entire docket on disk or zip drive, even though the docket was available to OSHA staff through its intranet.
- The copying fee of 15 cents a page was excessive.
- OSHA relied on a NIOSH review of 2000 studies in supporting the proposed rule; ''the 2000 studies were not'' in the docket.
- One economic document appeared to be named differently in the Preliminary Economic Analysis than in the preamble.
- The Docket Index was incomplete at certain times during the pre-hearing comment period.
- Only the cover pages of some documents were in the docket, as compared to the entire document.

Ex. 30–3956, pp. 134–37.

Many of these allegations are not accurate, and those that are represent the minor and harmless complications of managing any large record. It is not true that ''numerous'' documents, including the Preliminary Economic Analysis, were not available for public inspection by November 23, 1999. The Preliminary Economic Analysis was stamped as received in the Docket Office at 9:55 a.m. on November 23, 1999. As such, it was available for inspection and copying at that time. To the extent interested parties had difficulty locating or obtaining the Preliminary Economic Analysis, Docket Office staff were available to assist them.

OSHA also disputes the allegation that Exhibits 28–3, 28–4, and 28–5 were missing on November 23, 1999. In fact, the record indicates that Exhibits 28–3 and 28–4 were entered into the computer database on November 23, 1999 and thus were certainly available for viewing at that time. Exhibit 28–5 is a number without an exhibit; there is no such document and ''Exhibit 28–5'' was not cited or relied upon by OSHA in the preamble to the proposed rule, or in the Preliminary Economic Analysis.

OSHA does not know which other documents NCE and other commenters, *see* 30–3815, p. 4; 30–3956, pp. 133, 135; 30–3819, p. 3, claim were ''unavailable.'' After the proposed rule was published, however, OSHA discovered that a few documents cited in the proposed rule had been inadvertently omitted from the material placed in the docket by November 23, 1999. These documents included the following:

- *Firm Size Data Provided by the Bureau of the Census (Exhibit 28–6)*—These data provide estimates of the number of firms, number of establishments, employment, annual payroll and estimated receipts for employment size of firm categories by SIC code. It is available to the public from the Small Business Administration web page. OSHA used this information to estimate the economic impact of the proposed rule on various industries, as well as small businesses. When OSHA recognized that these data had inadvertently not been placed in the docket, it immediately placed in the docket a hard copy of the web page where interested parties could access the material (on December 23, 1999). On February 1, 2000, OSHA placed hard copies of the data (127 pages) in the docket. *See* Ex. 28–6–1.
- *RMA data*—These data provide net return on sales information by industry SIC code and are available in many public libraries. OSHA used this information to estimate the economic impact of the proposed rule on various industries. Due to copyright concerns, OSHA originally did not place this information in the docket. OSHA later obtained permission to include these data in the docket; once it obtained this permission, OSHA placed the information in the docket (on February 18, 2000). *See* Ex. 28–10.
- *IRS data*—These data also provide net return on sales information by industry and are available on the IRS web page. OSHA only used these data for a handful of industry sectors for which the RMA data were not available. When OSHA recognized that these data had inadvertently not been placed in the docket, it immediately placed the material in the docket (on January 31, 2000). See Ex. 28–9.

OSHA also did not rely upon data that it did not place in the rulemaking record. The commenters who raised this issue did not identify precisely what data they were referring to, *see* Exs. 30–3716, p.5; 30–3736, p. 10, but it may have been the same material that was requested in a number of Freedom of Information Act (FOIA) requests filed by some hearing participants. *See e.g.,* Ex. 503. Some of these requests were for information that was in the rulemaking docket, and others were for information that was not part of the rulemaking record, because OSHA had not relied on it in the proposed rule.

OSHA responded to the requests for information in a timely manner. *See* Ex. 500–23–1, p. 8. To the extent the information was available, OSHA provided it to the requesters, and, as appropriate, placed the FOIA requests and responses in the docket. *See* Ex. 503. OSHA is not, however, aware of any information it relied upon that it did not place in the docket. To be sure, OSHA receives data and information from a number of different sources when preparing a proposed rule. But all data that were relevant to the promulgation of the proposed rule and were relied upon by OSHA in the rulemaking were placed in the record.

The allegation that ''2000 studies'' relied upon by NIOSH in its literature review were not in the docket on November 23, 1999 is also factually inaccurate and of questionable relevance. NIOSH did not rely on 2000 studies in its literature review. As described more fully in Section V above, NIOSH originally examined 2000 studies in preparing its literature review but chose to use only about one-third of them, based on certain methodological criteria NIOSH established for the study. Ultimately, NIOSH included about 600 studies in its literature review. Many of these studies were in the rulemaking docket. For example, a quick check by OSHA located the following studies in the rulemaking record:

- Aaras A. [1994]. Relationship between trapezius load and the incidence of musculoskeletal illness in the neck and shoulder. Int. J. Ind. Ergonomics 14(4):341–348. Ex. 26–892.
- Armstrong T. *et al.* [1987a]. Ergonomic considerations in hand and wrist tendinitis. J. Hand. Sur. 12A(5):830–837. Ex. 26–48.
- Bigos S. *et al.* [1986b]. Back injuries in industry: a retrospective study. III. Employee-related factors. Spine 11:252–256. Ex. 26–871.
- Dehlin O. [1977]. Back symptoms and psychological perception of work: a study among nursing aides in a geriatric hospital. Scand. J. Rehabil. Med. 9:61–65. Ex. 26–820.

Even though a few of the studies examined by NIOSH may not have been in the docket, however, the public would not have been deprived of an adequate opportunity to review the information OSHA relied upon in the proposed rule, because OSHA relied upon the NIOSH literature review in discussing the epidemiological evidence supporting the proposed standard. The NIOSH literature review was in the docket and available for review by November 23, 1999. Ex. 26–1. OSHA's use of, and reliance upon, its research arm in this manner was expressly contemplated by Congress when it created NIOSH in the OSH Act. *See* 29 U.S.C. § 671. Furthermore, OSHA is not obligated to place in the docket every underlying study used by any researcher in reviewing the scientific literature about any particular subject. *Cf. Cable & Wireless P.L.C.* v. *FCC*, 166 F.3d 1224, 1234 (D.C. Cir. 1999) (FCC did not unreasonably rely upon published study even though underlying data for the study was not available to the FCC or the public).

It is also not true that printer failures and other computer problems prevented interested parties from reviewing and commenting meaningfully on any material in the docket. As stated earlier, OSHA is required to make critical material available for public inspection during the rulemaking proceeding. OSHA is generally not required to make such material available in any particular form or manner. In this case, OSHA made the relevant material available in hard copy format for review and copying (as appropriate) in the Docket Office reading room. OSHA is aware of no commenter who has suggested that any of the material in the docket was not available in hard copy form or that any of the copying machines were not functioning during the comment period. Indeed, one commenter expressly noted that there were ''no particular difficulties'' in requesting, reviewing, and copying documents in the rulemaking record. Ex. 500–218, p. 165.

And as explained, OSHA never intended its computer database to serve as the sole method for interested parties to use to review the record. OSHA intended the database to be an additional tool to facilitate this review, for those participants who prefer electronic access. OSHA does not believe that the occasional technical failure of this additional tool deprived any party of an opportunity to review relevant material.

Similarly, interested parties were not denied meaningful review because OSHA did not produce the entire docket electronically or on a zip file. First, as described above, OSHA provided a number of documents to interested parties on its web page and on CD–ROM, including the full Health Effects section as well as the entire Preliminary Economic Analysis. Second, OSHA made the information in the docket available electronically on its computer database. Providing the entire docket on a zip file would have been administratively difficult, expensive, and time consuming, particularly since the docket was constantly growing, with new submissions being received by Docket Office staff daily.

Third, providing the record in such a way would raise copyright issues for some of the material in the record. Finally, and as mentioned previously, OSHA is not required to provide the material in the record as an electronic or zip file. OSHA is, of course, continually investigating new ways to provide interested members of the public with access to the rulemaking record. However, there is surely no due process requirement that OSHA provide access to the document in any particular form, and OSHA's decision not to provide an additional form of electronic access did not violate due process or impede participants' ability to view the material in the rulemaking.

The fact that the Docket Office was open for 6 hours a day during the prehearing comment period also did not deny any party an adequate opportunity to review the record. Particularly with the technological assistance described above, OSHA believes that interested parties could adequately review the record and comment on the proposed rule in the time allotted. And as also discussed above, the quality and comprehensiveness of the pre-hearing submissions, including NCE's own 156 page submission, belie any suggestion that the parties were impeded in their ability to comment. Even so, when the hearing began OSHA extended the Docket Office hours to allow the public even more time to review the comments and evidence received into the rulemaking record. Docket Office hours were extended on March 13, 2000; the Docket Office continued these extended hours until September 1, 2000, well after the rulemaking record closed.

Certainly, the $0.15 a page fee the Docket Office charges for copying and printing did not deny interested parties an opportunity to review the record. OSHA is authorized to charge this nominal fee in order to recoup some of the costs of paper and toner, etc. *See* 29 CFR 70.40(d)(2). But OSHA does not charge any fee for interested parties to enter the Docket Office and review documents submitted to the record, so the fee did not prevent any interested party from viewing any document.

The fact that one particular economic document was improperly named in the Preliminary Economic Analysis also did not deprive parties of an adequate review of the record. Certainly, OSHA took pains to ensure that all documents were accurately cited in the preamble to the proposed rule, as well as in the computer database. It is precisely because human error may occur from time to time, however, that Docket Office staff are available to answer questions from interested parties, as well as to make inquiries of OSHA if parties are having difficulty locating certain documents. The specific document referred to by NCE, *Exhibit 28–7—Tabulations from OSHA's 1993 Ergonomics Survey*, was inadvertently titled *Description of Cost Estimates of Ergonomic Controls Under Draft OSHA Ergonomics Standard* in both the Preliminary Economic Analysis and the Summary of the Preliminary Economic Analysis (Summary) in the Preamble. OSHA corrected the error in the Summary in a corrections notice published December 30, 1999. See 64 FR 73448–58 (Dec. 30, 1999). OSHA,

however, did not place any new material—material that would have required additional analysis—into Exhibit 28–7 after correcting the title to the document. OSHA thus does not believe that this inaccurate citation deprived the public of an opportunity to review and comment upon the material in the Exhibit.

OSHA also believes that the Docket Index was never ''incomplete.'' By its very nature, the Docket Index is an unfinished and ever-growing document. Interested parties are continually sending documents to OSHA to place in the record. When the Docket Office receives a document, it is processed and placed into the record. Part of the processing involves entering the document into the computer database and generating the Docket Index. Thus, the Docket Index is constantly growing as new information is submitted to the record. This does not mean, however, that the Docket Index is ''incomplete'' at any particular time.

Docket Office staff processed rulemaking documents as soon as possible upon receipt. Indeed, OSHA moved people from other positions within the agency to expedite this process. OSHA does not believe that its processing of documents into the record and onto a Docket Index deprived any interested party an adequate opportunity to review the record or to comment meaningfully on the proposed standard.

Finally, in a few cases, due to copyright concerns, OSHA placed only the cover pages and tables of contents of published documents into the docket. These documents were generally available to interested parties upon request; they were also often publicly available. *See e.g.*, Tr. p. 2640 (Hearing participant complaining that only cover page of book in the record, but admitting he was able to obtain copy of the book). Once again, Docket Office staff were available to answer any questions from interested parties and to help locate materials that might otherwise be difficult to find. OSHA does not believe that this practice deprived interested parties of their right to review the record.

As the above discussion demonstrates, OSHA undertook extraordinary measures to provide interested members of the public access to the rulemaking record. These efforts ensured that all participants had an opportunity to examine the underlying information and comment meaningfully on the proposed rule.

D. OSHA's Use of Expert Witnesses

Consistent with its past practice, *see* Mintz, *OSHA: History, Law, and Policy* 64–5 (BNA 1984), OSHA contracted with a number of experts to testify at the hearing and to provide other assistance in the rulemaking process. Twenty-eight experts prepared pre-hearing comments, testified during the informal public hearing, answered questions at the hearing, and submitted post-hearing comments and data. These experts testified on a wide range of issues including the work-relatedness of MSDs, the diagnosis of MSDs, the implementation of engineering controls in workplaces, and the costs of ergonomic programs. *See* Testimony in Ex. 37. OSHA's use of expert witnesses in this way is expressly authorized by the OSH Act, is consistent with past practice, and is consistent with the practice of other administrative agencies.

Section 7(c)(2) of the OSH Act states: ''In carrying out his responsibilities under this Act, the Secretary [of Labor] is authorized to * * * (2) employ experts and consultants or organizations thereof as authorized by Section 3109 of Title 5.'' 29 U.S.C. § 656(2). The OSH Act does not limit the purposes for which OSHA may obtain expert assistance, and assuring that it has appropriate expertise during rulemaking proceedings falls squarely within this authorization. In *United Steelworkers of America* v. *Marshall (Lead)*, 647 F.2d 1189 (D.C. Cir. 1980), the U.S. Court of Appeals for the District of Columbia Circuit upheld OSHA's authority under the OSH Act to employ experts to prepare written comments, submit relevant data, and present testimony during rulemaking proceedings. The court stated: ''The OSH[] Act empowers the agency to employ expert consultants * * * and OSHA might have possessed that power even without express statutory authority * * * .'' *Id.* at 1217. The court also noted that it would be absurd to require OSHA and other agencies to ''hire enormous regular staffs versed in all conceivable technological issues, rather than use their appropriations to hire specific consultants for specific problems.'' *Id.*

OSHA has historically used experts to testify at public hearings about parts of proposed rules that fall within their areas of expertise. Some earlier OSHA rulemakings that involved OSHA expert witnesses included: the Lead rulemaking (1980); the Hazard Communication rulemaking (1983); the Ethylene Oxide rulemaking (1984); the Benzene rulemaking (1987); and the Methylene Chloride rulemaking (1997). Other federal agencies also use expert witnesses in ways similar to OSHA's. The Environmental Protection Agency, the Food and Drug Administration, and the Department of Transportation, for example, make extensive use of consultants in their rulemaking activities. See e.g., *BASF Wyandotte Corp.* v. *Costle*, 598 F.2d 637, 640–41 (1st Cir. 1979) (EPA retained outside consultants to analyze pesticide industry in preparation of regulation); *cf. National Small Shipments Traffic Conf., Inc.* v. *I.C.C.*, 725 F.2d 1442, 1449 (D.C. Cir. 1984) (ICC retained consultant to evaluate various methodological criticisms of rulemaking record). As explained in *A Guide to Federal Agency Rulemaking* published by the ABA:

> Agencies sometimes use the services of outside consultants in developing rules or supporting analyses, particularly in rulemakings involving questions of science or technology as to which the agency needs added expertise. The tasks consultants are asked to perform vary, but they include testifying as witnesses, conducting research, summarizing and evaluating data in the record, and helping draft portions of the final rule and its rationale. Lubbers, *A Guide to Federal Agency Rulemaking* 243 (ABA 1998).

Clearly, therefore, those commenters who claimed that it was improper, per se, for OSHA to contract with expert witnesses to participate in the rulemaking process were wrong. *See e.g.*, Exs. 500–43, pp. 1–2; 500–201, p. 2. OSHA has also considered the more specific objections that: (1) OSHA did not disclose to the public that it had contracted with the expert witnesses to participate in the rulemaking proceedings; (2) the expert witnesses had a financial interest in the rulemaking and therefore their testimony was tainted; (3) OSHA coached the witnesses; (4) the expert witnesses provided additional detailed critiques of other public commenters that were not placed in the rulemaking record; and (5) OSHA improperly used the expert witnesses to review and analyze the public comments and hearing testimony. *See* Exs. 500–188, pp. 7–10; 500–197, pp. IV–1925.

First, the rulemaking record is replete with evidence that OSHA's use of expert witnesses and consultants was disclosed to the public and was clearly known to the parties who cross-examined OSHA's experts at the public hearings. OSHA notified interested members of the public of its expert witnesses in several ways: (1) OSHA clearly listed its expert witnesses as ''OSHA Witnesses'' on the hearing schedule that was sent to hearing participants and placed on the OSHA webpage, *see* Ex. 502–476; (2) OSHA placed the witnesses' testimony

under a separate Exhibit number in the Docket Office labeled ''OSHA Expert Witnesses'', *see* Ex. 37; and (3) OSHA referred to its expert witnesses when responding to questions from members of the public during the first two days of the hearing. *See* Tr. pp. 1–142; 1–189; 1–205; 1–206; 1–229; 1–230; 719. Indeed, it was clear to the parties who cross-examined OSHA's experts that OSHA's experts were paid witnesses. For example, when an attorney representing UPS questioned OSHA witness Maurice Oxenburgh, he referenced the ''Expert Witness Cont[r]act for Dr. Maurice Oxenburgh.'' Tr. pp. 2637; *see* also Tr. p. 1440.

Second, OSHA's expert witnesses had no financial interest, and therefore no conflict of interest, in the outcome of the ergonomics rulemaking. The basis for this objection, raised by NCE *et al.,* appears to be that, because many of the expert witnesses were well-known ergonomics experts, they would benefit financially from an ergonomics standard, presumably because they would be hired more often to address ergonomic issues. According to this theory, the witnesses testified that there was a need for a standard on ergonomics in order to receive this future, speculative economic benefit. *See e.g.,* Ex. 500–197, p. IV–19.

In fact, however, OSHA hired these witnesses precisely because their experience with ergonomics provided them with relevant expertise. And their testimony shows clearly why most of them supported promulgation of this standard: they have participated in the implementation of ergonomics programs similar to those required by this standard, and have observed the success of those programs in reducing MSD rates, increasing productivity and efficiency, and decreasing workers' compensation costs. In other words, they believe that a program standard is necessary because they have seen programs work to reduce injuries among workers and save money for their employers. *See e.g.*, Exs. 37–7; 37–25; 37–20.

Third, there is no basis for the claim that OSHA improperly ''coached'' the expert witnesses. One of the witnesses'' functions was to help the public understand the scientific and technical research on which OSHA based its proposal. OSHA worked with its experts to be sure that they were prepared to explain clearly and succinctly, the reasoning and assumptions on which OSHA relied in developing the proposed standard. Indeed, OSHA believes that it had a responsibility to prepare its expert witnesses to present the scientific and technical assumptions that underlay the proposal. This preparation, however, does not represent improper ''coaching'' the witnesses. *See Lead*, 647 F.2d at 1211–16. None of the expert witnesses testified to anything they did not believe; in fact, some criticized aspects of the proposed rule with which they disagreed. *See e.g.*, Testimony of Les Boden, Tr. pp. 1683–34 (''Even though I happen to be here at the request of OSHA, I think it's clear that OSHA should reword the language that describes WRP so that people like myself, when they first read it, won't think that it means that the worker is supposed to be paid 90 percent of their after tax earnings * * *.''); Testimony of Laura Punnett, Tr. p. 1011 (''I would prefer to see a standard which is based on exposure levels * * * and which does not require the occurrence of disorders before a program goes into place.'').

Fourth, OSHA's expert witnesses did not prepare any detailed written critiques of public witnesses during the rulemaking process that OSHA could have, but did not place in the rulemaking record. The commenter who made this allegation, the Chamber, gave no support for it, but rather summarily stated: ''the Chamber *understands* that many of these supposed experts have *apparently* prepared detailed critiques of the public comments the Agency received, which have never been released to the public, much less subjected to rebuttal or cross-examination.'' Ex. 500–188, p. 8 (emphasis added). This allegation is not true. As detailed above, OSHA placed in the docket all of the information it relied upon in promulgating the standard.

Fifth and finally, OSHA did not improperly involve expert witnesses in the preparation of the proposed and final rule, and in the review and analysis of the public comments and hearing transcripts. It is true that OSHA hired some experts to help in preparing the proposed and final rule and in evaluating the rulemaking record; however, such use of experts is not improper. As described above, it is expressly authorized by the OSH Act and has been upheld by the D.C. Circuit Court of Appeals. *Lead*, 647 F.2d at 1216 (OSHA properly hired experts ''to summarize and evaluate data in the record, prepare record data for computer processing, and help draft portions of the Preamble and the final standard.''). In the end, OSHA must weigh the evidence and determine whether a standard is appropriate and how that standard should be designed to substantially reduce a significant risk of material harm. After examining all of the evidence in the rulemaking record—evidence that was subject to notice and comment—OSHA has made the determination that this standard is reasonably necessary and appropriate to reduce the significant risk of MSDs. OSHA's use of experts in helping to make that determination was not improper or inappropriate.

E. Supplemental Hearing on the Economic Impact of the Proposed Standard on the United States Postal Service, State and Local Governments, and Railroads

After OSHA published the proposed standard on November 23, 1999, it realized that it had failed to include in its Preliminary Economic Analysis and Initial Regulatory Flexibility Analysis an assessment of the economic impact of the proposed standard on the United States Postal Service, State and local governments, and railroads. Once OSHA recognized the omission, it conducted a supplemental analysis of the economic impact of the proposed standard on these groups (supplemental analysis) and published the analysis in the **Federal Register**. See 65 FR 33263 (May 23, 2000).

In order to allow interested parties an opportunity to comment on the supplemental analysis, which consisted only of 2 **Federal Register** pages (with a 10 page Technical Appendix), OSHA established a 30 day pre-hearing comment period, scheduled an informal public hearing on the supplemental analysis, and established a 34 day post-hearing comment period. 65 FR 33263 (May 23, 2000). The post-hearing comment period for the supplemental analysis closed the same day as the post-hearing comment period for the rest of the proposed standard. Id.

The hearing took place on July 7, 2000 in Atlanta, GA, and 8 parties filed Notices of Intent to Appear. See Exs. 701; 702. The hearing was scheduled to begin at 9:00 a.m. and conclude by the end of the day. 65 FR 37322, 37323 (June 14, 2000). An OSHA panel was available for questioning on the supplemental analysis from 9:15 a.m. until 12:00 p.m. A representative of UPS questioned the panel for more than two hours, and the presiding Administrative Law Judge permitted one person who had not filed a Notice of Intent to Appear to question OSHA for about 10 minutes. *See* Tr. pp. 18153–55; 18218. A representative of the railroad industry was the only party to present testimony at the afternoon session—the others having canceled their appearances—and the hearing concluded early. See Tr. pp. 18217–81.

OSHA's issuance of the supplemental analysis and procedures for comment on the analysis were consistent with applicable law. As described in detail above, the OSH Act and OSHA's procedural regulations require that OSHA provide at least 30 days for interested parties to comment on a proposed rule. 29 U.S.C. 655(2); 29 CFR 1911.11(b)(3). OSHA gave interested parties such an amount of time to submit pre-hearing comments on the supplemental analysis.

OSHA's procedures for seeking comment were also adequate to allow interested parties an opportunity to meaningfully comment on the supplemental analysis. The supplemental analysis was based in large measure on the original Preliminary Economic Analysis published on November 23, 1999. Id. at 33264. Interested parties, therefore, were familiar with the methodology employed by OSHA in the supplemental analysis before it was published on May 23, 2000. Indeed, virtually all of the parties who filed a Notice of Intent to Appear at the informal public hearing on the supplemental analysis (or who submitted written comments on the supplemental analysis) also filed written comments on the November 23, 1999 proposal. *See e.g.,* Comments of the United States Postal Service, Ex. 35–106; Comments of the Association of American Railroads, Ex. 30–3750; Comments of UPS, Ex. 32–241–4.

Because it was based on the earlier Preliminary Economic Analysis, the supplemental analysis was not a large, complicated document. *See e.g.,* Ex. 28–15 (Technical Appendix). Interested parties did not need to review numerous additional documents to prepare written comments. In addition, the industries analyzed in the supplemental analysis represented only a small fraction of the total industries affected by the proposed rule.

OSHA therefore disagrees with those commenters who contended that, by setting a 30 day pre-hearing comment period and by failing to provide a bifurcated post-hearing comment period (*i.e.,* the first part of the period for submission of additional data and evidence and the second part for post-hearing briefs and argument), OSHA did not provide for adequate comment on the supplemental analysis. OSHA gave interested parties more than 60 days to comment on the supplemental analysis (including the pre-hearing and post-hearing comment period); OSHA believes this period of time was more than adequate to allow interested parties to review the relevant record material, submit written comments and data, and prepare for the informal public hearing. In fact, the information supplied by the railroad industry was largely responsible for OSHA's decision to reserve for possible future rulemaking the issue of the applicability of the final rule to the railroad industry. See Discussion in Part IV, Paragraph (b) above.

F. The Post-Hearing Comment Period

As stated above, the Hearing Procedures established a 90 day post-hearing comment period for the rulemaking. 65 FR 11948, 11949 (Mar. 7, 2000). During the first 45 days of the period (until June 26, 2000), hearing participants could submit additional data and evidence to the rulemaking record. *Id.* Hearing participants had until August 10, 2000 to submit post-hearing briefs and arguments. Furthermore, trade associations or other groups who filed Notices of Intent to Appear were permitted to attach to their post-hearing submissions comments from their members who had not participated in the informal public hearing. *See e.g.,* Ex. 500–1. Numerous hearing participants availed themselves of the post-hearing comment period. For example:

- NCE *et al.* submitted 906 pages of new information and data and submitted a 565 page brief. See Exs. 500–118; 500–197.
- The Chamber submitted 22 pages of new information and data and submitted a 107 page brief. See Exs. 500–109; 500–188.
- The AFL–CIO submitted 2072 pages of new information and data and submitted a 178 page brief. See Exs. 500–71; 500–97; 500–218.
- The American Iron and Steel Institute submitted 186 pages of new information and data and submitted a 129 page brief. See Exs. 500–168; 500–223.

OSHA and its expert witnesses also participated in the post-hearing comment period. OSHA submitted new evidence and data it had obtained since publication of the proposal to the docket by June 26, 2000. See Ex. 502. Some of OSHA's expert witnesses also submitted new data, information, and argument at this time. *See e.g.,* 500–38; 500–134; 500–84. A few expert witnesses also submitted argument after June 26, 2000. *See e.g.,* 500–167. These arguments were postmarked on or before August 10, 2000, in accordance with the Hearing Procedures. 65 FR 11948, 11949 (Mar. 7, 2000).

The 90 day post-hearing comment period and OSHA's participation in it were consistent with Agency practice in past OSHA rulemakings, and did not deprive any member of the public the opportunity to comment on relevant evidence. Past OSHA rulemakings have included post-hearing comment periods of similar length. For example:

- Powered Industrial Trucks—90 day post-hearing comment period. 63 FR 66237 (Dec. 1, 1998).
- Cadmium—90 day post-hearing comment period. 57 FR 42101 (Sept. 14, 1992).
- Process Safety Management—90 day post-hearing comment period. 57 FR 6356 (Feb. 24, 1992).
- Hazard Communication—93 day post-hearing comment period. 48 FR 53280 (Nov. 25, 1983).

Indeed, in the Air Contaminants rulemaking the Secretary of Labor established a 77 day post-hearing comment period, a shorter period than that provided here. 53 FR 34708 (Sept. 7, 1988). As described in more detail above, the time allotted for comment in that rulemaking was challenged in the 11th Circuit Court of Appeals, which held that those comment periods did not deprive individuals of the opportunity to comment meaningfully. Air Contaminants, 965 F.2d at 969 n.8.

Here, too, OSHA believes that the 90 day post-hearing comment period was more than adequate to allow interested parties an opportunity to submit additional data and argument on the proposed rule. As stated above, parties who participated in the informal public hearing had 216 days, including the 90 day post-hearing comment period, from the date OSHA published the proposed rule to submit data and evidence to the rulemaking record for OSHA's consideration. They had 261 days from the date OSHA published the proposed rule to submit briefs and arguments to the rulemaking record. OSHA believes that this gave interested parties more than enough time to review the record, comment on the evidence submitted, and comment on the proposed rule.

In addition, the participation of OSHA and its expert witnesses in the post-hearing comment period was not improper. *See* Ex. 803–2. First, the Hearing Procedures did not preclude OSHA and its expert witnesses from participating in the post-hearing comment period. See 803–2. In past rulemakings, OSHA and its expert witnesses have participated fully in post-hearing comment periods by submitting data, evidence, and argument. *See e.g.,* Docket S775 (Steel Erection); Docket H225 (Formaldehyde); Docket S048 (Logging); Docket H049 (Respiratory Protection). For OSHA and its expert witnesses not to submit additional data and information it becomes aware of in the post-hearing

comment period would be negligent, given OSHA's mandate to consider the ''best available evidence'' in promulgating a standard. It would also give rise to the charge that OSHA was relying in the final standard on non-record evidence.

Second, in accordance with the Hearing Procedures, OSHA and its expert witnesses submitted all new data and evidence by June 26, 2000. Although some of the material was not scanned into the computer database until later, all of the information was available after June 26, 2000, in hard copy form in the Docket Office. OSHA even prepared a finding aid to help interested members of the public locate and review the information submitted. Thus, interested members of the public had an opportunity to review and comment on all new data and evidence submitted by OSHA and its expert witnesses. OSHA admits that a handful of its expert witnesses, like many other Hearing Participants, submitted post-hearing argument on August 10, 2000. *See e.g.*, Exs. 500–167; 500–187; 500–173. As explained above, this was permitted under the Hearing Procedures. 65 FR 11948, 11949 (Mar. 7, 2000). OSHA does not believe that these submissions constituted new information or data, as some commenters suggested. See 803–2. Rather, these submissions interpreted and analyzed evidence and data that were already a part of the rulemaking record. In any events, OSHA has not relied in the final standard on comments from its expert witnesses submitted after June 26, 2000.

OSHA acknowledges that NIOSH submitted a handful of new studies to the rulemaking record after the June 26, 2000 deadline. Because of this, OSHA has not relied upon these studies in promulgating this final rule; OSHA has also not relied upon the conclusions NIOSH reached in its post-hearing brief as evidence in the final standard, even though OSHA believes that NIOSH's post-hearing brief represents argument, not new data and evidence. OSHA has considered, however, the numerous studies NIOSH submitted in accordance with the Hearing Procedures on June 26, 2000. *See* Ex. 500–121. In short, OSHA is not relying in this standard on any information that interested parties did not have an opportunity to comment upon.

Finally, OSHA notes that some Hearing Participants submitted new evidence and data to the rulemaking record on August 10, 2000. *See e.g.,* Ex. 500–219. This new data and evidence was not submitted in accordance with the Hearing Procedures and other hearing participants did not have an opportunity to comment upon it during the post-hearing comment period. *See* 65 FR 11948, 11949 (Mar. 7, 2000). OSHA is thus under no obligation to consider it in promulgating the final rule. Even so, OSHA has examined the information and data carefully and given it appropriate consideration (consistent with the fact that it has not been subject to rebuttal by other hearing participants).

For these reasons, OSHA does not agree with those commenters who have implied that the post-hearing comment period was too brief or that OSHA and its expert witnesses improperly participated in the post-hearing comment period. *See e.g.,* Exs. 803–2; 500–197, p. IV–9.

XIII. Federalism

OSHA has reviewed the final ergonomics program rule in accordance with the Executive Order on Federalism (Executive Order 13132, 64 FR 43255, August 10, 1999). This Order requires that agencies, to the extent possible, refrain from limiting state policy options, consult with States prior to taking any actions that would restrict state policy options, and take such actions only when there is clear constitutional authority and the presence of a problem of national scope. The Order provides for preemption of State law only if there is a clear Congressional intent for the agency to do so. Any such preemption is to be limited to the extent possible.

Section 18 of the Occupational Safety and Health Act (OSH Act) expresses Congress' clear intent to preempt State laws with respect to which Federal OSHA has promulgated occupational safety or health standards. Under the OSH Act a State can avoid preemption only if it submits, and obtains Federal approval of, a plan for the development of such standards and their enforcement. Occupational safety and health standards developed by such State Plan States must, among other things, be at least as effective as the Federal standards in providing safe and healthful employment and places of employment.

Since many work-related MSDs are reported every year in every State and since MSD hazards are present in workplaces in every state of the Union, the risk of work-related MSD disorders is clearly a national problem. The Federal final ergonomics program standard is written so that employees in every State would be protected by the standard. To the extent that there are any State or regional peculiarities, States with occupational safety and health plans approved under Section 18 of the OSH Act would be able to develop their own comparable State standards to deal with any special problems.

In short, there is a clear national problem related to occupational safety and health for employees exposed to MSD hazards in the workplace. Any rule pertaining to ergonomics developed by States that have elected to participate under Section 18 of the OSH Act would not be preempted by this final rule if the State rule is determined by Federal OSHA to be ''at least as effective'' as the Federal rule. California has already promulgated a final ergonomics standard, and so has Washington. The State of North Carolina has proposed one. Because the ergonomics program standard may preempt State rules that are not ''at least as effective'' as the Federal rule, OSHA has determined that it has ''federalism implications'' as defined in Executive Order 13132. The order requires consultation with State and local governments for regulations that have federalism implications.

In the course of OSHA's development of this final standard for ergonomics, OSHA solicited and received a great deal of participation from representatives of state, county and municipal governments. Some representatives participated by attending one or more stakeholder meetings held by OSHA in the early stages of the rulemaking effort. Others participated by submitting written comment or testifying at the public hearing. Below is a listing of those who participated in the rulemaking process.

Representatives of the following state, county, and municipal entities attended one or more of the OSHA-sponsored stakeholder meetings addressing the Ergonomic Program Standard:

The City of Greensboro, N.C.; the Virginia State Department of Labor and Industry; the State of Hawaii Department of Labor; the Washington State Department of Labor and Industries; Iowa OSHA; the Maryland Occupational Safety and Health Administration; the New York State Department of Labor; the North Carolina Safety and Health Program, and Utah OSHA.

Representatives of the following state, county, and municipal entities were invited to attend one or more of the OSHA-sponsored stakeholder meetings addressing the Ergonomic Program Standard, but elected not to send a representative:

Cal/OSHA Consultation Services; California OSHA; the City of Casper, Wyoming; The City of Mt. Airy, North Carolina; the City of Portland, Oregon, Bureau of Risk Management; the North Carolina Department of Labor; the North

Carolina League of Municipalities; the Ohio Bureau of Workers' Compensation; Oregon OSHA; the State of Kansas Consultation Program, and the Texas Workers Compensation Insurance Fund.

Representatives of the following state, county, and municipal entities provided comments to the public rulemaking docket for the proposed Ergonomic Program Standard (Docket S–777):

Butler Rural Elec Cooperative Inc. (Exs. 30–182 and 30–239); North Park Public Water District (Ex. 30–212); City of Garner (Ex. 30–219); Colchester Public Works (Ex. 30–247); Appomattox River Water Authority (Ex. 30–248); South Island Public Services District (Exs. 30–252; 30–281; and 30–354); Des Moines Water Works (Exs. 30–254 and 30–279); Mishawaka Utilities (Exs. 30–255 and 30–278); Public Works Department (Ex. 30–257); Saginaw Midland Municipal Water Supply Corp (Ex. 30–258); Board of Public Utilities (Ex. 30–261); City of Nashville (Ex. 30–270); Stroudsburg Municipal Authority (Ex. 30–271); City of Laurel (Ex. 30–272); City of Drain (Ex. 30–273); McCormick Comm of Public Works (Ex. 30–274); Ilion Water Comm Municipal Building (Ex. 30–275); Rural Lorain County Water Authority (Ex. 30–285); Winchester Municipal Utilities (Ex. 30–286); Ohio Rural Elec Cooperatives Inc. (Ex. 30–297); St. Louis County Water Co (Ex. 30–302); City of East Jordan (Ex. 30–304); Clarksdale Public Utilities (Ex. 30–305); Westmont Water Department (Ex. 30–342); Bucks County Water and Sewer Authority (Ex. 30–343); Town of Hillsborough (Ex. 30–347); Department of Water Supply (Ex. 30–356); the City of Portsmouth (Ex. 30–357); Cedar Rapids Water Department (Ex. 30–366); State of Maine Comm on Labor (Ex. 30–376); City of Elko (Ex. 30–377); Arizona School Alliance (Ex. 30–382); New Jersey AM Water Co (Ex. 30–402); Fayette County Hospital (Ex. 30–420); Mohave Union High School District Number 30 (Ex. 30–433); Cartwright School District Number 83 (Ex. 30–439); City of Murfreesboro (Ex. 30–440); Gurnee Public Works (Ex. 30–450); City of David City (Ex. 30–482); Cartwright School District Number 83 (Ex. 30–492); Tualatin Valley Water District (Ex. 30–495); United Water Conservation District (Ex. 30–500); Shoshone Municipal Pipeline (Ex. 30–501); South Fulton (Ex. 30–504); City of Hood River (Ex. 30–505); Municipal Authority of the Township of Robinson (Ex. 30–507); City of Petersburg (Ex. 30–508); Town of Greensboro (Ex. 30–510); Thermalito Irrigation District (Ex. 30–512); McCloud Comm Services District (Ex. 30–513); State of Kansas Department of Human Resources (Ex. 30–522); Salt River Project (Ex. 30–526); HI Desert District Water (Ex. 30–549); Clear Creek Comm Services District (Ex. 30–553); Cucamonga County Water District (Ex. 30–558); Ramona Municipal Water District (Ex. 30–578); Clackamas River Water (Ex. 30–579); State University of New York (Ex. 30–584); Kyrene School District (Ex. 30–590); Arizona School Alliance (Ex. 30–591); Pennsylvania State Representative (Ex. 30–599); The Arlington Chamber (Ex. 30–600); Anchorage Water and Wastewater Utility (Ex. 30–622); Multnomah County Oregon (Exs. 30–637 and 500–18); Gilbert Public Schools (Ex. 30–691); Elsinore Valley Municipal Water District (Ex. 30–693); District of Columbia Water and Sewer Authority (Ex. 30–702); Bullhead City Schools (Ex. 30–704); Mukilteo Water District (Exs. 30–714 and 30–982); City of Tampa Water Department (Ex. 30–869); the Industrial Commission of Arizona (Ex. 30–877); Valley County Water District (Ex. 30–880); Plainview Water District (Ex. 30–900); Lake Hemet Municipal Water District (Ex. 30–902); Jordan Valley Water Conservancy District (Ex. 30–916); City of David City and David City Utilities (Ex. 30–1002); Bellevue Department of Public Works (Ex. 30–1003); City of Nooksack (Ex. 30–1009); Multnomah County Department of Support Services (Ex. 30–1018); Kentucky Labor Cabinet (Ex. 30–1024); Olivehain Municipal Water District (Ex. 30–1039); Oregon Department of Consumer and Business Services (Ex. 30–1110); North Park Public Water District (Ex. 30–1114); Board of Public Utilities (Ex. 30–1116); Village of Morrisville Water and Light Department (Ex. 30–1118); Pennsylvania Farm Bur (Exs. 30–1121; 30–1202; and 30–1204); Owatonna Public Utilities (Ex. 30–1124); City of Monona (Ex. 30–1125); Consumers Pennsylvania Water Co (Ex. 30–1127); Rock Rapids Utilities (Ex. 30–1128); Warminster Municipal Authority (Ex. 30–1130); June Lake Public Utility District (Ex. 30–1140); City Hall, City of Canyonville (Ex. 30–1206); Central New York Water Authority (Ex. 30–1212); Sanitary District No. 4 Town of Brookfield (Ex. 30–1247); Nevada Irrigation District (Ex. 30–1262); City of Boerne (Ex. 30–1265); Blacksburg Christainsburg VPI Water Authority (Ex. 30–1272); Casitas Municipal Water District (Ex. 30–1275); Jennings North West Regional Utilities (Ex. 30–1310); Ypsilanti Comm Utilities Authority (Ex. 30–1329); Mammoth Comm Water District (Ex. 30–1376); City of Elko City Hall (Ex. 30–1413); Charter Township of Independence (Ex. 30–1415); Town of Oyster Bay, N.Y. (Ex. 30–1447); Clear Creek Community Services District (Ex. 30–1471); Washington Suburban Sanitary Commission (Ex. 30–1508); Contra Costa Water District (Ex. 30–1526); Bona Vista Water Improvement District (Ex. 30–1527); Stanislaus County (Ex. 30–1531); Alaska Municipal League (Ex. 30–1536); Long Beach Public Transportation Co. (Ex. 30–1539); Municipal Association of South Carolina (Ex. 30–1583); Salem County Utilities Authority (Ex. 30–1714); Texas Department of Criminal Justice (Ex. 30–1847); Western Governors Association (Ex. 30–2036); State of Kansas Department of Human Resources (Ex. 30–2041); Public Hospital District No. 1 of Pend Oreille County (Exs. 30–2731 and 30–4103); Oregon Department of Consumer and Business Services (Ex. 30–3022); Point Lookout Village (Ex. 30–3073); Oswego County Ambulance (Ex. 30–3186); Louisville Water Company (Ex. 30–3187); Richmond Ambulance Authority (Ex. 30–3311); New York Department of Labor (Ex. 30–3731); Elizabethtown Water Company (Ex. 30–3739); PIMA County Risk Management Department (Ex. 30–3968); New York State Thruway Authority (Ex. 30–4057); Montana State Fund (Ex. 30–4847); Commonwealth of Pennsylvania Department of Labor and Industry (Ex. L–30–4932); Attorney General of Missouri (Ex. L–30–5216); Nevada City School District (Ex. 31–23); City of Ridgecrest (Ex. 31–135); City of De Pere (Ex. 31–137); Sonoma County Water Agency (Ex. 31–146); Denver Public Schools (Ex. 31–180); Porter Hills Presbyterian Village (Exs. 31–209 and 30–220); Stark County Department of Human Services (Ex. 31–213); San Diego City Schools (Ex. 31–234); Fairfax County Government Risk Management Division (Ex. 31–306); Lewis County Public Health (Ex. 31–308); Washington State Farm Bureau (Ex. 31–312); Indiana Association of Cities and Towns, for Richmond Indiana (Ex. 31–328); State of New Mexico Workers Compensation Admin (Exs. 500–13–1 thru 500–13–5); Washington Department of Labor and Industry (Exs. 500–20–1 thru 500–20–8); Oregon Department of Consumer and Business Services (Ex. 500–28–1); Washington State Department of Labor and Industry (Exs. 500–41–1 thru 500–41–120); State of Oregon Department of Consumer and Business Services (Ex. 500–71–22); Washington State Department of Labor and Industry (Ex. 500–86); Oregon Department of Insurance and Finance (Ex. 500–141–1); Oregon Workers Compensation Department (Ex. 500–141–2); Oregon Department of Insurance and Finance (Ex. 500–141–3); New Mexico Workers Compensation Administration (Ex. 500–184–1); City of Portland Environmental Services (Ex. 501–4); Washington State (Ex. 502–67); Alaska Department of Labor (Ex. 502–98); California Department of Labor (Ex. 502–104); California Office of Occupational Safety and Health (Ex. 502–106); California Department of Industrial Relations (Ex. 502–220); Pittsburgh County Memorial Hospital (Ex. 502–285); Allouez Water Department (Ex. 600–X–15); Goshen Water and Sewer Plant (Ex. 600–X–16); Stevens Point Water and Sewage Treatment Department (Ex. 600–X–18); City of George West (Ex. 600–X–19); Pennsylvania AM Water Company (Ex. 600–X–20); City of Cuyahoga Falls (Ex. 600–X–21); Water and Light Department (Ex. 600–X–22); Mars Hill Utility District (Ex. 600–X–23); Marshall County Board of Public Utilities (Ex. 600–X–24); The City of North Myrtle Beach (Ex. 600–X–25); Niagara County Water District (Ex. 600–X–26); Old Hickory Utility District of Davidson County (Ex. 600–X–27); Bella Vista Water District (Ex. 600–X–28); Columbus Water Works (Ex. 600–X–29); Dept of Engineering and Public Works (Exs. 600–X–31 and 600–X–67); North Carolina General Assembly (Ex. 601–X–391); New Jersey State League of Municipalities (Ex. 601–X–444); the Commonwealth of Massachusetts (Ex. 601–X–630); Florida House of Representatives (Exs. 601–X–712 and 601–X–838); Texas House of Representatives (Ex. 601–X–946); State of Tennessee (Ex. 601–X–980); Utah State Senate (Ex. 601–X–1013); West Virginia Municipal League (Ex. 601–X–1125); Rhode Island League of Cities and Towns (Ex. 601–X–1133); New Jersey State League of Municipalities (Ex. 601–X–1134); and the City of Portland Oregon (Ex. 601–X–1494).

In addition, representatives of the following state, county, and municipal

entities gave oral testimony at the informal public hearings on the proposed Ergonomic Program Standard:

The New York State Attorney General; the National League of Cities; the Montgomery County (Ohio) Administration; the State of New Mexico Worker's Compensation Administration; the State of California Department of Health and Human Services; the City of Portland, Oregon; the Multnomah County, Oregon Government; the Oregon Workers' Compensation Division and the State of Washington Department of Labor and Industries.

Representatives of the following state, county, and municipal entities provided written comments at the informal public hearing on the proposed Ergonomic Program Standard:

The Wisconsin Department of Industry and Labor (Ex. DC–78); the New Jersey Department of Health and Senior Services (Ex. DC–109A); Montgomery County, Ohio (Ex. Il–169); the New Mexico Workers' Compensation Administration (Ex. Il–222); the City of Portland, Oregon (Ex. Or–324); the Oregon Department of Consumer and Business Services (Ex. Or–350–1); the State of Oregon Board of Dentistry (Ex OR–351–9); the National League of Cities (Ex. DC–371) and the Washington State Department of Labor and Industry (Exs. DC 417, 417–1 and 417–2).

OSHA's ergonomics rulemaking process has thus involved hundreds of representatives from every level of government. Many State governments (*e.g.*, Maine, Washington, Oregon, Kansas, Arizona. Kentucky, Pennsylvania, New York, Nevada, Texas, Montana, Missouri, New Mexico, Alaska, California, Indiana, North Caroline, Massachusetts, Florida, Tennessee, Utah and local and municipal governments (*e.g.*, Nashville, TN; Portsmouth, VA; Petersburg, AK; Greensboro, NC; Multnomah County, OR; District of Columbia, Blackburn-Christainsburg, VA; Ypsilanti, MI; Long Beach, CA; Denver, CO; Richmond, IN; Montgomery County, OH) participated either by appearing in person at the hearings or submitting written comments. Municipal and State entities represented included, water districts, school districts, electrical utilities, public works departments, municipal authorities, hospitals and long-term care facilities, labor commissions, human resource departments, universities, legislative bodies, industrial commissions, workers' compensation administrations, public transportation systems, emergency medical services, public highway authorities, emergency medical services, public highway authorities, state insurance funds, public health departments, and environmental services.

Representation by governmental entities has been greater for this rule than for any other OSHA rule. OSHA has benefitted from the information and data provided by these representatives at stakeholder meetings held during the years the standard was under development, and the Agency has carefully reviewed and considered the oral testimony and written submissions of the participants. Many of their comments are addressed throughout the preamble to the final rule, others are discussed below.

An examination of the comments revealed that many commenters shared similar concerns and views on how to remedy those concerns. OSHA received hundreds of comments, for example, expressing concern that the proposed standard lacked clarity. Over 80 of these comments were identical, raising concerns about coverage, costs and how to comply. For example, many commenters said:

* * * The lack of specificity throws OSHA's estimates of range of impact and cost to employers into serious question. It also leaves employers attempting to comply in good faith at risk of non-compliance. Based on these concerns, I therefore, request that OSHA review its proposed ergonomics standard and provide clarification about both what kind of work and what types of workers are covered by it.

Commenters asked that OSHA clarify its exemption of construction work. OSHA has responded in depth to these concerns in the summary and explanation of the rule (see the discussion for paragraph (b), Does this standard apply to me?) Other commenters asked for clarification as to the application of the rule to the agricultural industry, inmates in penal institutions, the manufacturing industry, the ambulance industry, and the solid waste management industry. These issues are also addressed in the summary and explanation for paragraph (b). Some of the specific comments are discussed in greater detail below.

Some commenters complained the proposal was too long; the comment period too short and then questioned the science used by OSHA, suggesting that OSHA table its work until the National Academy of Sciences completes its second literature review. (Exs.30–1018; 30–1536; and 30–1847). Comments addressing procedural issues are discussed in the Procedural Issues section of the preamble; those on the science supporting this rule are reviewed in the Health Effects section (Section V).

The Des Moines Water Works, the Oregon Department of Consumer and Business Services, the Alaska Municipal League, and the Long Beach Public Transportation Company (*See, e.g.,* Exs. 30–254; 30–1110; 30–1536; 30–1539;), among many others, expressed concerns regarding the effect of the rule on Workers' Compensation Systems and suggested that workers' comp is an area best left to the states to address. Some commenters questioned whether OSHA had the authority to address issues related to workers' compensation systems and questioned whether OSHA's cost estimates included the cost to be expended by ''every company in the nation in renegotiate their workers compensation premium costs with insurance companies for these WRP payments?'' (Ex. 30–254). Issues raised by commenters about workers' compensation and its relation, or lack of it, to OSHA's work restriction protections, are responded to in the summary and explanation for paragraph (r).

The Pennsylvania Farm Bureau (Ex. 30–1121) said the proposal raised concerns for farm employers even though OSHA did not propose to apply the rule to agriculture. One concern cited by this commenter was that farmers would be affected by higher costs passed on to them by suppliers and others directly impacted by the rule. Another concern expressed by the Bureau was the extent to which agricultural operations were exempt from the rule. The Bureau cited various OSHA interpretations and language used to clarify when general industry and agricultural standards applied as the reason for their concern. The Pennsylvania Farm Bureau stated that OSHA should exclude agriculture from the coverage of the proposed standard. Similar concerns on this issue were raised by the Pennsylvania Farm Bureau, the New York Farm Bureau, the North Carolina Farm Bureau Federation, and others (*See e.g.,* Ex. 30–1201; 30–1418; 30–1421) as well as individual farmers (*See e.g.,* Ex. 30–1202 and 30–1204). OSHA notes that the final Ergonomic Program Standard does not apply to agricultural operations. A full and complete discussion of this issue can be found in the summary and explanation for paragraph (b), Does this standard apply to me?

Some commenters (Exs. 30–1536 and 30–1583) who are members of the National League of Cities (NLC) noted that the NLC does not support the application of the federal ergonomics standards to municipal governments. They cited their inability to obtain funding and their lack of technical resources to put an ergonomic program together as reasons for the objection. OSHA will provide considerable

compliance assistance to the regulated community that may help NLC members reduce expenditures and develop solutions. These materials will be listed on OSHA's website at *www.osha.gov.*

The Salem County Utilities Authority (Ex. 30–1714) registered their support for the position of the National Solid Wastes Management Association's (NSWMA) request that the solid waste management industry be exempt from the ergonomic program standard. This commenter listed a number of reasons similar to those set out by OSHA in the proposed rule as the basis for the exemption of the construction, maritime and agricultural industries. OSHA's response to NSWMA's concerns are addressed in connection with paragraph (b) of the summary and explanation.

The Texas Department of Criminal Justice (TDCJ) (Ex. 30–1847) requested an exemption for correctional worker positions and asked for clarification of the applicability of the rule to prisoners assigned to manufacturing positions. Like other commenters, TDCJ expressed concern about the number of new staff that would be needed, in their view, to comply with the ergonomics program standard.

The Butler Rural Electric Cooperative, Inc. (Ex. 30–182) acknowledged the importance of an ergonomics program and provided details on the work already done by Butler; however, they believe that the OSHA ergonomics program standard is not necessary because OSHA could continue to rely on the General Duty Clause to do the job. In addition, Butler raised some concerns about the Work Restriction Protection provisions of the proposal, which they believe will encourage fraud. Again, these are areas of concern that have been raised by other commenters and are discussed at length in the summary and explanation section for paragraph (r).

The Stanislaus County (CA) Risk Management Division (Ex. 30–1531) suggested that more specific guidance was needed to help employers comply with the standard. They supported the grandfather clause, stating that ''Stanislaus County has saved millions of dollars over the last six years with the implementation of our injury and loss prevention program. One of these programs includes ergonomics.'' They support the grandfather clause because they believe ''There should be some incentive for those employers who are already making a good faith effort, with programs in place, to be rewarded, and we would encourage you to keep the grandfather clause.'' In response, OSHA notes that the final rule contains a grandfather clause (see paragraph (c)).

The Long Beach Public Transportation Company (Ex. 30–1539) stated their agreement with the fundamental concepts proposed by OSHA, but expressed some opposition regarding the classification of MSDs and the standard's potential impact on workers compensation laws. Long Beach Transportation encouraged OSHA ''to provide education to promote even more voluntary employer ergonomic programs to address the issues of MSDs.'' The concluding comment of this entity was that ''The Standard, as proposed, however would place an economic and regulatory burden on employers, would treat injured employees inequitably and would jeopardize voluntary systems already in place to address this issue.'' This view was also expressed by many commenters from state, county and municipal governments. In response, OSHA notes that employers and entities covered by the rule can anticipate to reap substantial benefits from their programs (see the discussion of the results achieved by others in the final economic analysis).

The Richmond Ambulance Authority (RAA) (Ex. 30–3311) stated that they ''applaud and support OSHA's effort to address ergonomic concerns in the workplace.'' This commenter then listed a few areas of concern and noted that the exemption criteria for industries with special compliance issues clearly apply to the ambulance industry. The RAA said that ''compliance efforts by members of the ambulance industry would be extremely costly'' and urged OSHA to exclude back pain from the kinds of MSDs covered.

OSHA is grateful to the many state, local, municipal, other government entities who have participated actively in this rulemaking. All the concerns raised by these commenters have been considered, and many changes to the rule have been made based on the comments and suggestions provided by these participants.

XIV. State Plans States

The 23 states and 2 territories which operate their own Federally-approved occupational safety and health plans must adopt a comparable standard within six months of the publication date of a final standard. These States include: Alaska, Arizona, California, Connecticut (for State and local government employees only), Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, New York (for State and local government employees only), North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands, Washington, Wyoming. Until such time as a state or territorial standard is promulgated, Federal OSHA will provide interim enforcement assistance, as appropriate.

XV. OMB Review Under the Paperwork Reduction Act of 1995

This final ergonomics program standard contains collections of information (paperwork) that are subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (PRA'95), 44 U.S.C. 3501 *et seq.* and its regulation at 5 CFR § 1320. PRA'95 defines collection of information to mean, ''the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public of facts or opinions by or for an agency regardless of form or format.'' [44 U.S.C. § 3502(3)(A)]. OSHA submitted an Information Collection Request (ICR) for OMB approval when the proposed rule for the ergonomic program standard was published on November 23, 1999. OMB did not approve the ergonomic program's information collection provisions at that time, but instructed the Agency that future ICR submissions should use the OMB control number 1218–0245. OSHA has submitted a final ICR estimating the paperwork burden hours and costs, to OMB as required by 5 CFR § 1320.11(h) for approval. Public comments regarding paperwork issues are addressed in the Summary and Explanation, and Cost and Benefit chapters of the final standard.

The following section provides information on the collections of information contained in the final ergonomics program standard, as required by 5 CFR § 1320.5(a)(1)(iv) and § 1320.8(d)(2) . It describes the collections of information, the need for and proposed use of the information, and the covered employers who will be required to collect and maintain information under the standard. The section also discusses the required time periods for collecting and maintaining this information, and provides an estimate of the annual cost and reporting burden. (Reporting burden includes the time for reviewing instructions, gathering and maintaining the data needed, and completing and reviewing the collection of information.)

Title: The ergonomics program standard, 29 CFR § 1910.900.

Description: The final ergonomics program standard addresses the significant risk of work-related MSDs confronting employees in various jobs in general industry workplaces. The standard's information collection requirements are essential components

that will help employers and employees to recognize work-related MSDs and to determine what must be done to address these MSDs and MSD hazards in the workplace. OSHA compliance officers will use some of the information in their enforcement of the standard.

Summary of the Collections of Information: The final ergonomics standard requires employers to do the following: familiarize themselves with the final standard; provide basic ergonomic information to their employees; receive employees' reports of musculoskeletal disorders (MSDs) or MSD signs or symptoms; and determine if a reported MSD is work-related and if the employee's job meets the standard's Action Trigger. If an employee's job meets the standard's Action Trigger, the employer will incur additional paperwork requirements in complying with the ergonomics program requirement or the quick fix option.

MSD management is triggered when the employee experiences a work-related MSD that meets the Action Trigger and requires medical treatment beyond first aid, or involves MSD signs or MSD symptoms that last for 7 or more consecutive days after the employee first reports them to the employer. The employer must provide that employee with access to a health care professional (HCP). When the employee consults with an HCP, the employer must obtain a written opinion from the HCP and provide a copy of that opinion to the employee. The employer must provide the HCP with a description of the employee's job and information about the physical work activities, risk factors, and MSD hazards in the job; a copy of this standard; and a list of items that the HCP's written opinion must contain, including temporary work restrictions, if necessary.

Paperwork requirements for employers to develop and implement the ergonomic program include: management leadership, employee participation in the employer's ergonomic program, job hazard analysis, hazard control measures, and evaluation of the ergonomic program.

Employers with 10 or more employees, including part-time employees, must keep written or electronic records of the following: (i) Employee reports of MSDs, their signs and symptoms and MSD hazards, (ii) Employer's response to employee reports; (iii) Job Hazard Analysis; (iv) Hazard control measures, (v) Quick fix process, (vi) Ergonomics program evaluations, and (vii) Records of work restrictions and the HCP written opinions. Employers must keep all records, except the HCP written opinion, for 3 years or until replaced by updated records, whichever comes first. The HCP written opinion must be kept for the duration of the employee's employment plus 3 years.

Employers must provide employees, their representatives, OSHA, and NIOSH access to the above records, except the HCP opinions, for examination and copying in accordance with the procedures and time periods provided in 29 CFR 1910.1020(e)(1), (e)(2)(ii), (e)(3) and (f). Employers must provide the HCP opinion to employees, to anyone having the specific written consent of the employee, to OSHA, and to NIOSH upon request for examination and copying in accordance with the procedures and time periods provided in 29 CFR 1910.1020(e)(1), (e)(2)(ii), (e)(3) and (f).

Respondents: Employers in general industry. The standard does not apply to employment covered by the following OSHA standards, or to employment such as office management and support services directly related to that employment: (i) OSHA construction standards in Part 1926; (ii) OSHA's maritime standards in Part 1915, 1917, or 1918; or OSHA's agriculture standards in Part 1928. The standard also does not apply to railroad operations or to employment such as office management and support services directly related to the operation of a railroad.

Frequency of Response: All employers must provide basic ergonomic information to current and new employees. The frequency of other paperwork requirements is determined by whether the employer has an employee who has experienced an MSD incident, and whether the employee's job meets the standard's Action Trigger.

Average Time Per Response: Time per response varies, from minimal recordkeeping requirements for a quick fix situation, to establishing and implementing a complete ergonomics program.

Total Burden Hours: Approximately 36.5 million hours.

Estimated Costs (Operating and Maintenance): $61 million (purchasing services).

XVI. Authority and Signature

This document was prepared under the direction of Charles N. Jeffress, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.

This final standard is issued pursuant to sections 4, 6, and 8 Occupational Safety and Health Act, 29 U.S.C. 653, 655, 657, Secretary of Labor's Order No. 3–2000 (65 FR 50017) and 29 CFR Part 1911.

List of Subjects in 29 CFR Part 1910

Ergonomics program, Health, Musculoskeletal disorders, Occupational safety and health, reporting and recordkeeping requirements.

Signed at Washington, DC, this 6th day of November 2000.

Charles N. Jeffress,

Assistant Secretary of Labor for Occupational Safety and Health.

XVII. The Standard

The Occupational Safety and Health Administration is amending Part 1910 of title 29 of the Code of Federal Regulations as follows:

PART 1910—[AMENDED]

New Subpart W of 29 CFR Part 1910 is added to read as follows:

Subpart W—Program Standards

Sec.
1910.900 Ergonomics program standard.

Subpart W—Program Standards

Authority: Secs. 4, 6, and 8, Occupational Safety and Health Act, 29 U.S.C. 653, 655, 657, Secretary of Labor's Order No. 3–2000 (65 FR 50017); and 29 CFR Part 1911.

§ 1910.900 Ergonomics Program Standard.

(a) *What is the purpose of this standard?* The purpose of this standard is to reduce the number and severity of musculoskeletal disorders (MSDs) caused by exposure to risk factors in the workplace. This standard does not address injuries caused by slips, trips, falls, vehicle accidents, or similar accidents.

Note to paragraph (a): Definitions of terms used in this standard are in paragraph (z) of this section.

(b) *Does this standard apply to all employers?* This standard covers all employers covered by the Act with the following exceptions:

This standard does not apply to employment covered by the following OSHA standards, or to employment such as office management and support services directly related to that employment:

(i) OSHA's construction standards in Part 1926 of this chapter;

(ii) OSHA's maritime standards in Part 1915, 1917, or 1918 of this chapter; or

(iii) OSHA's agriculture standards in Part 1928 of this chapter.

(2) This standard does not apply to railroad operations or to employment such as office management and support services directly related to the operation of a railroad.

(c) *How does this standard apply if I already have an ergonomics program in place when the OSHA ergonomics program standard becomes effective?*

(1) You may continue to implement your program instead of complying with paragraphs (d) through (y) of this section, provided that your program is written, complies with the requirements of paragraph (c) of this section, has been implemented before November 14, 2000, and contains the following program elements:

(i) Management leadership, as demonstrated by an effective MSD reporting system and prompt responses to reports, clear program responsibilities, and regular communication with employees about the program;

(ii) Employee participation, as demonstrated by the early reporting of MSDs and active involvement by employees and their representatives in the implementation, evaluation, and future development of your program;

(iii) Job hazard analysis and control, as demonstrated by a process that identifies, analyzes, and uses feasible engineering, work practice, and administrative controls to control MSD hazards or to reduce MSD hazards to the levels below those in the hazard identification tools in Appendix D to this section or to the extent feasible, and evaluates controls to assure that they are effective;

Note to paragraph (c)(1)(iii): Personal protective equipment (PPE) may be used to supplement engineering, work practice, and administrative controls, but you may only use PPE alone where other controls are not feasible. Where PPE is used, you must provide it at no cost to employees.

(iv) Training of managers, supervisors, and employees (at no cost to these employees) in your ergonomics program and their role in it; the recognition of MSD signs and symptoms; the importance of early reporting; the identification of MSD hazards in jobs in your workplace; and the methods you are taking to control them; and

(v) Program evaluation, as demonstrated by regular reviews of the elements of the program and of the effectiveness of the program as a whole, using such measures as reductions in the number and severity of MSDs, increases in the number of jobs in which MSD hazards have been controlled, or reductions in the number of jobs posing MSD hazards to employees; and the correction of identified deficiencies in the program. At least one review of the elements and effectiveness of the program must have taken place prior to January 16, 2001.

(2) By January 16, 2002, you must have implemented a policy that provides MSD management as specified in paragraphs (p), (q), (r), and (s) of this section.

(3) An employer who has policies or procedures that discourage employees from participating in the program or reporting the signs or symptoms of MSDs or the presence of MSD hazards in the workplace does not qualify for grandfather status under paragraph (c) of this section.

(d) *If the standard applies to me, what initial action must I take?*

(1) You must provide each current and each new employee basic information about:

(i) Common musculoskeletal disorders (MSDs) and their signs and symptoms;

(ii) The importance of reporting MSDs and their signs and symptoms early and the consequences of failing to report them early;

(iii) How to report MSDs and their signs and symptoms in your workplace;

(iv) The kinds of risk factors, jobs and work activities associated with MSD hazards; and

(v) A short description of the requirements of OSHA's ergonomics program standard.

(2) You must make available to the employee a summary of the requirements of this standard.

(3) You must provide the information in written form or, if all employees have access, in electronic form. You must provide the information to new employees within 14 days of hiring. You must post the information in a conspicuous place in the workplace (*e.g.,* employee bulletin board or, if all employees have access, electronic posting).

Note to paragraph (d): You may use the information sheet in non-mandatory Appendix A to this section to comply with paragraphs (d)(1) of this section and the summary sheet in non-mandatory Appendix B to this section to comply with paragraph (d)(2) of this section.

(e) *What must I do when an employee reports an MSD or the signs or symptoms of an MSD?*

(1) You must promptly determine whether the reported MSD or MSD signs or symptoms qualify as an MSD incident. You may request the assistance of a Health Care Professional (HCP) in making this determination. A report is considered to be an MSD incident in the following two cases:

(i) The MSD is work-related and requires days away from work, restricted work, or medical treatment beyond first aid; or

(ii) The MSD signs or symptoms are work-related and last for 7 consecutive days after the employee reports them to you.

(2) If the employee has experienced an MSD incident, you must determine whether the job meets the standard's Action Trigger. See paragraph (f) of this section.

(3) If the employee has not experienced an MSD incident, you do not need to take further action.

(f) *How do I determine whether the employee's job meets the Action Trigger?*

(1) A job meets the Action Trigger if:

(i) An MSD incident has occurred in that job; and

(ii) The employee's job routinely involves, on one or more days a week, exposure to one or more relevant risk factors at the levels described in the Basic Screening Tool in Table W–1.

(2) If the employee's job does not meet the Action Trigger, you do not need to take further action.

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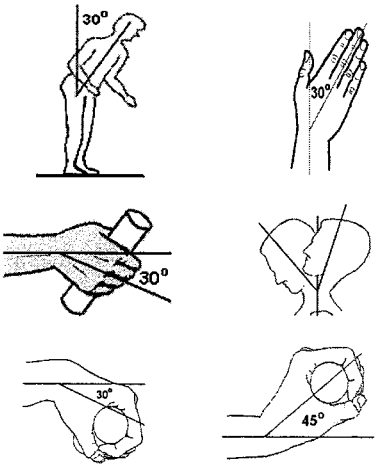
Table W-1 - Basic Screening Tool

You need only review risk factors for those areas of the body affected by the MSD incident.

		Body Part Associated With MSD Incident			
Risk Factors This Standard Covers	**Performing job or tasks that involve:**	Neck/ Shoulder	Hand/ Wrist/ Arm	Back/ Trunk/ Hip	Leg/ knee/ Ankle
Repetition	(1) Repeating the same motions every few seconds or repeating a cycle of motions involving the affected body part more than twice per minute for more than 2 consecutive hours in a workday.	√	√	√	√
	(2) Using an input device, such as a keyboard and/or mouse, in a steady manner for more than 4 hours total in a workday.	√	√		
Force	(3) Lifting more than 75 pounds at any one time; more than 55 pounds more than 10 times per day; or more than 25 pounds below the knees, above the shoulders, or at arms' length more than 25 times per day;	√	√	√	√
	(4) Pushing/pulling with more than 20 pounds of initial force (e.g., equivalent to pushing a 65 pound box across a tile floor or pushing a shopping cart with five 40 pound bags of dog food) for more than 2 hours total per day;	√	√	√	√
	(5) Pinching an unsupported object weighing 2 or more pounds per hand, or use of an equivalent pinching force (e.g., holding a small binder clip open) for more than 2 hours total per day;		√		
	(6) Gripping an unsupported object weighing 10 pounds or more per hand, or use of an equivalent gripping force (e.g., crushing the sides of an aluminum soda can with one hand), for more than 2 hours total per day.		√		

Table W-1 - Basic Screening Tool - continued

You need only review risk factors for those areas of the body affected by the MSD incident.

		Body Part Associated With MSD Incident			
Risk Factors This Standard Covers	**Performing job or tasks that involve:**	Neck/ Shoulder	Hand/ Wrist/ Arm	Back/ Trunk/ Hip	Leg/ knee/ Ankle
Awkward Postures	(7) Repeatedly raising or working with the hand(s) above the head or the elbow(s) above the shoulder(s) for more than 2 hours total per day;	√	√	√	
	(8) Kneeling or squatting for more than 2 hours total per day;			√	√
	(9) Working with the back, neck or wrists bent or twisted for more than 2 hours total per day (see figures:) 	√	√	√	
Contact Stress	(10) Using the hand or knee as a hammer more than 10 times per hour for more than 2 hours total per day;		√		√
Vibration	(11) Using vibrating tools or equipment that typically have high vibration levels (such as chainsaws, jack hammers, percussive tools, riveting or chipping hammers) for more than 30 minutes total per day;	√	√	√	
	(12) Using tools or equipment that typically have moderate vibration levels (such as jig saws, grinders, or sanders) for more than 2 hours total per day.	√	√		

BILLING CODE 4510–26–C

(g) *What actions must I take if the employee's job meets the Action Trigger?* For the employee's job and all jobs in the establishment that are the same as that job, you must either:

(1) Comply with the Quick Fix option in paragraph (o) of this section, or

(2) Develop and implement an ergonomics program that includes the following elements:

(i) Management leadership as specified in paragraph (h) of this section;

(ii) Employee participation as specified in paragraph (i) of this section;

(iii) MSD management as specified by paragraphs (p), (q), (r), and (s) of this section;

(iv) Job hazard analysis as specified by paragraph (j) of this section;

(v) Hazard reduction and control measures as specified in paragraphs (k), (l), and (m) of this section, and evaluations as specified in paragraph (u) of this section, if the job hazard analysis determines that the job presents an MSD hazard;

(vi) Training as specified in paragraph (t) of this section.

(h) *What must I do to demonstrate management leadership?* You must:

(1) Assign and communicate responsibilities for setting up and managing the ergonomics program;

(2) Provide designated persons with the authority, resources, and information necessary to meet their responsibilities;

(3) Ensure that your policies and practices encourage and do not discourage:

(i) The early reporting of MSDs, their signs and symptoms, and MSD hazards; and

(ii) Employee participation in the ergonomics program;

(4) Communicate periodically with employees about the ergonomics program and their concerns about MSDs.

(i) *What must I do to ensure employee participation in my program?* You must ensure that employees and their representatives:

(1) Have ways to promptly report MSDs, MSD signs and symptoms, and MSD hazards in your workplace;

(2) Receive prompt responses to their reports of MSDs, MSD signs and symptoms, and MSD hazards;

(3) Are provided with a summary of the requirements of this standard, as specified in paragraph (d)(2) of this section, and have ready access to a copy of this standard and to information about MSDs, MSD signs and symptoms, MSD hazards, and your ergonomics program; and

(4) Have ways to be involved in the development, implementation, and evaluation of your ergonomics program.

(j) *What must I do to determine whether a job that meets the Action Trigger poses an MSD hazard to employees in that job?*

(1) You must conduct a job hazard analysis for that job. You may rely on an analysis previously conducted in accordance with this section to the extent it is still relevant.

(2) Your job hazard analysis must include all employees who perform the same job, or a sample of employees in that job who have the greatest exposure to the relevant risk factors, and include the following steps:

(i) Talk with those employees and their representatives about the tasks the employees perform that may relate to MSDs; and

(ii) Observe the employees performing the job to identify the risk factors in the job and to evaluate the magnitude, frequency, and duration of exposure to those risk factors.

(3) You must use one or more of the following methods or tools to conduct this analysis:

(i) One or more of the hazard identification tools listed in Appendix D–1 to this section, if the tools are relevant to the risk factors being addressed;

(ii) The occupation-specific hazard identification tool in Appendix D–2 to this section;

(iii) A job hazard analysis conducted by a professional trained in ergonomics; or

(iv) Any other reasonable method that is appropriate to the job and relevant to the risk factors being addressed.

(4) If you determine that there is an MSD hazard in the job, the job will be termed a ''problem job.''

Note to paragraph (j): If you determine that the MSD hazards pose a risk only to the employee who reported the MSD, you may limit your job controls, training and evaluation to that individual employee's job.

(k) *What is my obligation to reduce MSD hazards in a problem job?*

(1) You must:

(i) Control MSD hazards; or

(ii) Reduce MSD hazards in accordance with or to levels below those in the hazard identification tools in Appendix D to this section; or

(iii) If you cannot reduce MSD hazards in accordance with paragraphs (k)(1)(i) or (k)(1)(ii) of this section, you must do the following:

(A) Reduce MSD hazards to the extent feasible;

(B) At least every 3 years, assess the job and determine whether there are additional feasible controls that would control or reduce MSD hazards; and

(C) If such controls exist, implement them until you have reduced the MSD hazards in accordance with paragraphs (k)(1)(i) or (k)(1)(ii) of this section.

(2) If a work-related MSD occurs in a job whose hazard(s) you have reduced to the levels specified in paragraph (k)(1) of this section, you must:

(i) Ensure that appropriate controls are still in place, are functioning, and are being used properly, and

(ii) Determine whether new MSD hazards exist and, if so, take steps to reduce the hazards as specified in paragraph (m) of this section.

Note to paragraph (k): The occurrence of an MSD in a problem job is not in itself a violation of this standard.

(l) *What kinds of controls must I use to reduce MSD hazards?*

(1) For each problem job, you must use feasible engineering, work practice or administrative controls, or any combination of them, to reduce MSD hazards in the job. Where feasible, engineering controls are the preferred method of control.

(2) You may use personal protective equipment (PPE) to supplement engineering, work practice or administrative controls, but you may use PPE alone only where other controls are not feasible. Where you use PPE, you must provide it at no cost to employees.

(m) *What steps must I take to reduce MSD hazards?* You must:

(1) Ask employees in the problem job and their representatives to recommend measures to reduce MSD hazards;

(2) Identify and implement initial controls within 90 days after you determine that the job meets the Action Trigger. Initial controls mean controls that substantially reduce the exposures even if they do not reach the levels specified in paragraph (k)(1) of this section.

(3) Identify and implement permanent controls that meet the levels specified in paragraph (k)(1) of this section within 2 years after you determine that a job meets the Action Trigger, except that initial compliance can take up to January 18, 2005 whichever is later.

(4) Track your progress and ensure that your controls are working as intended and have not created new MSD hazards. This includes consulting with employees in problem jobs and their representatives. If the controls are not effective or have created new MSD hazards, you must use the process in paragraphs (m)(1) and (m)(2) of this section to identify additional control measures that are appropriate and

implement any such measures identified.

(n) [Reserved].

(o) *May I use a Quick Fix instead of setting up a full ergonomics program?*

(1) You may use a Quick Fix for a job if your employees have experienced no more than one MSD incident in that job, and there have been no more than two MSD incidents in your establishment, in the preceding 18 months.

(2) To use a Quick Fix, you must:

(i) Provide the MSD management required by paragraphs (p), (q), (r), and (s) of this section, as appropriate, to the employee promptly after you determine that the employee's job meets the Action Trigger;

(ii) Talk with employees in the job and their representatives about the tasks the employees perform that may relate to the MSD incident; and

(iii) Observe employees performing the job to identify which risk factors are likely to have caused the MSD incident;

(iv) Ask the employee(s) performing the job and their representatives to recommend measures to reduce exposure to the MSD hazards identified;

(v) Within 90 days of your determination that the job meets the Action Trigger in paragraph (e) of this section, implement controls in the job in accordance with paragraph (l) of this section that control the MSD hazards or reduce MSD hazards in accordance with or to levels below those in the hazard identification tools in Appendix D to this section, and train the employee(s) in the use of these controls;

(vi) Within 30 days after you implement the controls, review the job to determine whether you have reduced the MSD hazards to the levels specified in paragraph (o)(2)(v) of this section; and

(vii) Keep a record of the Quick Fix process for each job to which it is applied. You must keep the record for 3 years.

(3) If you determine that you have reduced the MSD hazards to the levels specified in paragraph (o)(2)(v) of this section, you need take no further action except to maintain controls, the training related to those controls, and recordkeeping.

(4) If you have not reduced MSD hazards to the levels specified in paragraph (o)(2)(v) of this section, you must implement an ergonomics program, as specified in paragraph (g) of this section.

(p) *What MSD management process must I implement for an employee who experiences an MSD incident in a job that meets the Action Trigger?*

(1) You must provide the employee with prompt and effective MSD management at no cost to the employee. MSD management must include:

(i) Access to a Health Care Professional (HCP);

(ii) Any necessary work restrictions, including time off work to recover;

(iii) Work restriction protection; and

(iv) Evaluation and follow-up of the MSD incident.

(2) You must obtain a written opinion from the HCP for each evaluation conducted under this standard, and provide a copy to the employee. You must instruct the HCP that the opinion may not include any findings or information that is not related to workplace exposure to risk factors, and that the HCP may not communicate such information to the employer, except when authorized to do so by State or Federal law.

(3) Whenever an employee consults an HCP for MSD management, you must provide the HCP with the following:

(i) A description of the employee's job and information about the physical work activities, risk factors and MSD hazards in the job;

(ii) A copy of this standard; and

(iii) A list of information that the HCP's opinion must contain.

Note to paragraph (p): MSD management under this standard does not include medical treatment, emergency or post-treatment procedures.

(q) *What information must the HCP's opinion contain?* The HCP's opinion must contain:

(1) The HCP's assessment of the employee's medical condition as related to the physical work activities, risk factors and MSD hazards in the employee's job;

(2) Any recommended work restrictions, including, if necessary, time off work to recover, and any follow-up needed;

(3) A statement that the HCP has informed the employee of the results of the evaluation, the process to be followed to effect recovery, and any medical conditions associated with exposure to physical work activities, risk factors and MSD hazards in the employee's job; and

(4) A statement that the HCP has informed the employee about work-related or other activities that could impede recovery from the injury.

(r) *What must I do if temporary work restrictions are needed?*

(1) If an employee experiences an MSD incident in a job that meets the Action Trigger, you must provide the employee with any temporary work restrictions or time off work that the HCP determines to be necessary, or if no HCP was consulted, that you determine to be necessary.

(2) Whenever you place limitations on the work activities of the employee in his or her current job or transfer the employee to a temporary alternative duty job in accordance with paragraph (r)(1) of this section, you must provide that employee with Work Restriction Protection, which maintains the employee's employment rights and benefits, and 100% of his or her earnings, until the earliest of the following three events occurs:

(i) The employee is able to resume the former work activities without endangering his or her recovery; or

(ii) An HCP determines, subject to the determination review provisions in paragraph (s) of this section, that the employee can never resume his or her former work activities; or

(iii) 90 calendar days have passed.

(3) Whenever an employee must take time off from work in accordance with paragraph (r)(1) of this section, you must provide that employee with Work Restriction Protection, which maintains the employee's employment rights and benefits and at least 90% of his or her earnings until the earliest of the following three events occurs:

(i) The employee is able to return to the former job without endangering his or her recovery;

(ii) An HCP determines, subject to the determination review provisions in paragraph (s) of this section, that the employee can never return to the former job; or

(iii) 90 calendar days have passed.

(4) You may condition the provision of WRP on the employee's participation in the MSD management that this standard requires.

(5) Your obligation to provide WRP benefits to a temporarily restricted or removed employee is reduced to the extent that the employee receives compensation for earnings lost during the work restriction period from either a publicly or an employer-funded compensation or insurance program, or receives income from employment made possible by virtue of the employee's work restriction.

Note to paragraph (r): The employer may fulfill the obligation to provide work restriction protection benefits for employees temporarily removed from work by allowing the employees to take sick leave or other similar paid leave (*e.g.,* short-term disability leave), provided that such leave maintains the worker's benefits and employment rights and provides at least 90% of the employee's earnings.

(s) *What must I do if the employee consults his or her own HCP?*

(1) If you select an HCP to make a determination about temporary work restrictions or work removal, the

employee may select a second HCP to review the first HCP's finding at no cost to the employee. If the employee has previously seen an HCP on his or her own, at his or her own expense, and received a different recommendation, he or she may rely upon that as the second opinion;

(2) If your HCP and the employee's HCP disagree, you must, within 5 business days after receipt of the second HCP's opinion, take reasonable steps to arrange for the two HCPs to discuss and resolve their disagreement;

(3) If the two HCPs are unable to resolve their disagreement quickly, you and the employee, through your respective HCPs, must, within 5 business days after receipt of the second HCP's opinion, designate a third HCP to review the determinations of the two HCPs, at no cost to the employee;

(4) You must act consistently with the determination of the third HCP, unless you and the employee reach an agreement that is consistent with the determination of at least one of the HCPs;

(5) You and the employee or the employee's representative may agree on the use of any expeditious alternative dispute resolution mechanism that is at least as protective of the employee as the review procedures in paragraph (s) of this section.

(t) *What training must I provide to employees in my establishment?*

(1) You must provide initial training, and follow-up training every 3 years, for:

(i) Each employee in a job that meets the Action Trigger;

(ii) Each of their supervisors or team leaders; and

(iii) Other employees involved in setting up and managing your ergonomics program.

(2) The training required for each employee and each of their supervisors or team leaders must address the following topics, as appropriate:

(i) The requirements of the standard;

(ii) Your ergonomics program and the employee's role in it;

(iii) The signs and symptoms of MSDs and ways of reporting them;

(iv) The risk factors and any MSD hazards in the employee's job, as identified by the Basic Screening Tool in Table W–1 and the job hazard analysis;

(v) Your plan and timetable for addressing the MSD hazards identified;

(vi) The controls used to address MSD hazards; and

(vii) Their role in evaluating the effectiveness of controls .

(3) The training for each employee involved in setting up and managing the ergonomics program must address the following:

(i) Relevant topics in paragraph (t)(2) of this section;

(ii) How to set up, manage, and evaluate an ergonomics program;

(iii) How to identify and analyze MSD hazards and select and evaluate measures to reduce the hazards.

(4) You must provide initial training to:

(i) Each employee involved in setting up and managing your ergonomics program within 45 days after you have determined that the employee's job meets the Action Trigger;

(ii) Each current employee, supervisor and team leader within 90 days after you determine that the employee's job meets the Action Trigger;

(iii) Each new employee or current employee prior to starting a job that you have already determined meets the Action Trigger;

(5) You do not have to provide initial training in a topic that this standard requires to an employee who has received training in that topic within the previous 3 years.

(6) You must provide the training required by paragraph (t) of this section in language that the employee understands. You must also give the employee an opportunity to ask questions about your ergonomics program and the content of the training and receive answers to those questions.

(u) *What must I do to make sure my ergonomics program is effective?*

(1) You must evaluate your ergonomics program at least every 3 years as follows:

(i) Consult with your employees in the program, or a sample of those employees, and their representatives about the effectiveness of the program and any problems with the program;

(ii) Review the elements of the program to ensure they are functioning effectively;

(iii) Determine whether MSD hazards are being identified and addressed; and

(iv) Determine whether the program is achieving positive results, as demonstrated by such indicators as reductions in the number and severity of MSDs, increases in the number of problem jobs in which MSD hazards have been controlled, reductions in the number of jobs posing MSD hazards to employees, or any other measure that demonstrates program effectiveness.

(2) You must also evaluate your program, or a relevant part of it, when you have reason to believe that the program is not functioning properly.

(3) If your evaluation reveals deficiencies in your program, you must promptly correct the deficiencies.

Note to paragraph (u): The occurrence of an MSD incident in a problem job does not in itself mean that the program is ineffective.

(v) *What is my recordkeeping obligation?*

(1) If you have 11 or more employees, including part-time or temporary employees, you must keep written or electronic records of the following:

(i) Employee reports of MSDs, MSD signs and symptoms, and MSD hazards,

(ii) Your response to such reports,

(iii) Job hazard analyses,

(iv) Hazard control measures,

(v) Quick fix process,

(vi) Ergonomics program evaluations, and

(vii) Work restrictions, time off of work, and HCP opinions.

(2) You must provide all records required by this standard, other than the HCP opinions, upon request, for examination and copying, to employees, their representatives, the Assistant Secretary and the Director in accordance with the procedures and time periods provided in § 1910.1020(e)(1), (e)(2)(i), (e)(3), and (f).

(3) You must provide the HCP opinion required by this standard, upon request, for examination and copying, to the employee who is the subject of the opinion, to anyone having the specific written consent of the employee, and to the Assistant Secretary and the Director in accordance with the procedures and time periods provided in § 1910.1020(e)(1), (e)(2)(ii), (e)(3), and (f).

(4) You must keep all records for 3 years or until replaced by updated records, whichever comes first, except the HCP's opinion, which you must keep for the duration of the employee's employment plus 3 years.

(5) You do not have to retain the HCP opinion beyond the term of an employee's employment if the employee has worked for less than one year and if you provide the employee with the records at the end of his or her employment.

(w) *When does this standard become effective?* This standard becomes effective January 16, 2001.

(x) *When must I comply with the provisions of the standard?*

(1) You must provide the information in paragraph (d) of this section to your employees by October 15, 2001. After that date you must respond to employee reports of MSDs and signs and symptoms of MSDs.

(2) You must meet the time frames shown in Table W–2 for the other requirements of this section, when you have determined that an employee has experienced an MSD incident, in accordance with paragraph (e) of this section.

TABLE W–2.—COMPLIANCE TIME FRAMES

Requirements and related recordkeeping	Time frames
Paragraph (e), (f): Determination of Action Trigger	Within 7 calendar days after you determine that the employee has experienced an MSD incident.
Paragraphs (p), (q), (r), (s): MSD Management	Initiate within 7 calendar days after you determine that a job meets the Action Trigger.
Paragraphs (h) & (i): Management Leadership and Employee Participation.	Initiate within 30 calendar days after you determine that a job meets the Action Trigger.
Paragraph (t)(4)(i): Train Employees involved in setting up and managing your ergonomics program.	Within 45 calendar days after you determine that a job meets the Action Trigger.
Paragraph (j): Job Hazard Analysis	Initiate within 60 calendar days after you determine that a job meets the Action Trigger.
Paragraph (m)(2): Implement Initial Controls	Within 90 calendar days after you determine that a job meets the Action Trigger
Paragraph (t)(5)(ii): Train current employees, supervisors or team leaders.	Within 90 calendar days after you determine that the employee's job meets the Action Trigger.
Paragraph (m)(3): Implement Permanent Controls	Within 2 years after you determine that a job meets the Action Trigger, except that initial compliance can take up to January 18, 2005 whichever is later.
Paragraph (u): Program Evaluation	Within 3 years after you determine that a job meets the Action Trigger.

Note to paragraph (x): Refer to paragraph (o) of this section for Quick Fix timeframes.

(y) *When may I discontinue my ergonomics program for a job?* You may discontinue your ergonomics program for a job, except for maintaining controls and training related to those controls, if you have reduced exposure to the risk factors in that job to levels below those described in the Basic Screening Tool in Table W–1.

(z) *Definitions.* The following definitions apply to this standard:

Administrative controls are changes in the way that work in a job is assigned or scheduled that reduce the magnitude, frequency or duration of exposure to ergonomic risk factors. Examples of administrative controls for MSD hazards include:

(1) Employee rotation;

(2) Job task enlargement;

(3) Alternative tasks;

(4) Employer-authorized changes in work pace.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

Control MSD Hazards: means to reduce MSD hazards to the extent that they are no longer reasonably likely to cause MSDs that result in work restrictions or medical treatment beyond first aid.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designated representative.

Employee representative means, where appropriate, a recognized or certified collective bargaining agent.

Engineering controls are physical changes to a job that reduce MSD hazards. Examples of engineering controls include changing or redesigning workstations, tools, facilities, equipment, materials, or processes.

Follow-up means the process or protocol an employer or HCP uses to check on the condition of an employee after a work restriction is imposed on that employee.

Health care professionals (HCPs) are physicians or other licensed health care professionals whose legally permitted scope of practice (*e.g.,* license, registration or certification) allows them to provide independently or to be delegated the responsibility to carry out some or all of the MSD management requirements of this standard.

Job means the physical work activities or tasks that an employee performs. This standard considers jobs to be the same if they involve the same physical work activities or tasks, even if the jobs have different titles or classifications.

Musculoskeletal disorder (MSD) is a disorder of the muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels, or spinal discs. For purposes of this standard, this definition only includes MSDs in the following areas of the body that have been associated with exposure to risk factors: neck, shoulder, elbow, forearm, wrist, hand, abdomen (hernia only), back, knee, ankle, and foot. MSDs may include muscle strains and tears, ligament sprains, joint and tendon inflammation, pinched nerves, and spinal disc degeneration. MSDs include such medical conditions as: low back pain, tension neck syndrome, carpal tunnel syndrome, rotator cuff syndrome, DeQuervain's syndrome, trigger finger, tarsal tunnel syndrome, sciatica, epicondylitis, tendinitis, Raynaud's phenomenon, hand-arm vibration syndrome (HAVS), carpet layer's knee, and herniated spinal disc. Injuries arising from slips, trips, falls, motor vehicle accidents, or similar accidents are not considered MSDs for the purposes of this standard.

MSD hazard means the presence of risk factors in the job that occur at a magnitude, duration, or frequency that is reasonably likely to cause MSDs that result in work restrictions or medical treatment beyond first aid.

MSD incident means an MSD that is work-related, and requires medical treatment beyond first aid, or MSD signs or MSD symptoms that last for 7 or more consecutive days after the employee reports them to you.

MSD signs are objective physical findings that an employee may be developing an MSD. Examples of MSD signs are:

(1) Decreased range of motion;

(2) Deformity;

(3) Decreased grip strength; and
(4) Loss of muscle function.

MSD symptoms are physical indications that an employee may be developing an MSD. For purposes of this Standard, MSD symptoms do not include discomfort. Examples of MSD symptoms are:
(1) Pain;
(2) Numbness;
(3) Tingling;
(4) Burning;
(5) Cramping; and
(6) Stiffness.

Personal protective equipment (PPE) is equipment employees wear that provides a protective barrier between the employee and an MSD hazard. Examples of PPE are vibration-reduction gloves and carpet layer's knee pads.

Problem job means a job that the employer has determined poses an MSD hazard to employees in that job.

Risk factor means, for the purpose of this standard: force, awkward posture, repetition, vibration, and contact stress.

Work practice controls are changes in the way an employee performs the physical work activities of a job that reduce or control exposure to MSD hazards. Work practice controls involve procedures and methods for safe work. Examples of work practice controls for MSD hazards include:
(1) Use of neutral postures to perform tasks (straight wrists, lifting close to the body);
(2) Use of two-person lift teams;
(3) Observance of micro-breaks.

Work-related means that an exposure in the workplace caused or contributed to an MSD or significantly aggravated a pre-existing MSD.

Work restriction protection (WRP) means the maintenance of the earnings and other employment rights and benefits of employees who are on temporary work restrictions. Benefits include seniority and participation in insurance programs, retirement benefits and savings plans.

Work restrictions are limitations, during the recovery period, on an employee's exposure to MSD hazards. Work restrictions may involve limitations on the work activities of the employee's current job (light duty), transfer to temporary alternative duty jobs, or temporary removal from the workplace to recover. For the purposes of this standard, temporarily reducing an employee's work requirements in a new job in order to reduce muscle soreness resulting from the use of muscles in an unfamiliar way is not a work restriction. The day an employee first reports an MSD is not considered a day away from work, or a day of work restriction, even if the employee is removed from his or her regular duties for part of the day.

You means the employer as defined by the Occupational Safety and Health Act of 1970 (29 U.S.C. 651 *et seq.*)

Appendices to § 1910.900

Non-Mandatory Appendix A to §1910.900: What You Need To Know About Musculoskeletal Disorders (MSDs)

Ergonomics is the science of fitting jobs to the people who work in them. The goal of an ergonomics program is to reduce work-related musculoskeletal disorders (MSDs) developed by workers when a major part of their jobs involve reaching, bending over, lifting heavy objects, using continuous force, working with vibrating equipment and doing repetitive motions.

What are signs and symptoms of MSDs that you should watch out for?
Workers suffering from MSDs may experience less strength for gripping, less range of motion, loss of muscle function and inability to do everyday tasks. Common symptoms include:

Painful joints
Pain, tingling or numbness in hands or feet
Shooting or stabbing pains in arms or legs
Swelling or inflammation
Burning sensation
Pain in wrists, shoulders, forearms, knees
Fingers or toes turning white
Back or neck pain
Stiffness

What are MSDs?
MSDs are injuries and illnesses that affect muscles, nerves, tendons, ligaments, joints or spinal discs. Your doctor might tell you that you have one of the following common MSDs.

Carpal tunnel syndrome
Trigger finger
Tendinitis
Herniated spinal disc
Tension neck syndrome
Rotator cuff syndrome
Sciatica
Raynaud's phenomenon
Low back pain
De Quervain's disease
Epicondylitis
Carpet layers' knee
Hand-arm Vibration Syndrome

If you have signs or symptoms of MSDs.....

If MSD signs and symptoms are not reported early, permanent disability may result. It is important that you report MSD signs and symptoms right away to avoid long-lasting problems. Your employer is required to respond promptly to those reports. Contact the following person to report MSDs, MSD signs or symptoms or MSD hazards:

Name **Phone**

What causes MSDs?
Workplace MSDs are caused by exposure to the following risk factors:

Repetition. Doing the same motions over and over again places stress on the muscles and tendons. The severity of risk depends on how often the action is repeated, the speed of the movement, the number of muscles involved and the required force.

Forceful Exertions. Force is the amount of physical effort required to perform a task (such as heavy lifting) or to maintain control of equipment or tools. The amount of force depends on the type of grip, the weight of an object, body posture, the type of activity and the duration of the task.

Awkward Postures. Posture is the position your body is in and affects muscle groups that are involved in physical activity. Awkward postures include repeated or prolonged reaching, twisting, bending, kneeling, squatting, working overhead with your hands or arms, or holding fixed positions.

Contact Stress. Pressing the body against a hard or sharp edge can result in placing too much pressure on nerves, tendons and blood vessels. For example, using the palm of your hand as a hammer can increase your risk of suffering an MSD.

Vibration. Operating vibrating tools such as sanders, grinders, chippers, routers, drills and other saws can lead to nerve damage.

What is the OSHA Ergonomics Standard?

OSHA's standard requires employers to respond to employee reports of work-related MSDs or signs and symptoms of MSDs that last seven days after you report them. If your employer determines that your MSD, or MSD signs or symptoms, can be connected to your job, your employer must provide you with an opportunity to contact a health care professional and receive work restrictions, if necessary. Your wages and benefits must be protected for a period of time while on light duty or temporarily off work to recover. Your employer must analyze the job and if MSD hazards are found, must take steps to reduce those hazards.

Your employer is required to make available a summary of the OSHA ergonomics standard. The full standard can be found at http://www.osha.gov.

- **Talk to your supervisor or other responsible persons about your suggestions on how to fix the problem.**

- **Your employer may not discriminate against you for reporting MSDs, MSD signs or symptoms or MSD hazards. Your employer may not have policies that discourage such reporting.**

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Non-Mandatory Appendix B to § 1910.900: Summary of the OSHA Ergonomics Program Standard

1. Why did OSHA issue an Ergonomics Program Standard?

OSHA has issued an ergonomics standard to reduce musculoskeletal disorders (MSDs) developed by workers whose jobs involve repetitive motions, force, awkward postures, contact stress and vibration. The principle behind ergonomics is that by fitting the job to the worker through adjusting a workstation, rotating between jobs or using mechanical assists, MSDs can be reduced and ultimately eliminated.

2. Who is covered by the standard?

All general industry employers are required to abide by the rule. The standard does not apply to employers whose primary operations are covered by OSHA's construction, maritime or agricultural standards, or employers who operate a railroad.

3. What does the rule require employers to do?

The rule requires employers to inform workers about common MSDs, MSD signs and symptoms and the importance of early reporting. When a worker reports signs or symptoms of an MSD, the employer must determine whether the injury meets the definition of an MSD incident—a work-related MSD that requires medical treatment beyond first aid, assignment to a light duty job or temporary removal from work to recover, or work-related MSD signs or MSD symptoms that last for seven or more consecutive days.

If it is an MSD Incident, the employer must check the job, using a Basic Screening Tool to determine whether the job exposes the worker to risk factors that could trigger MSD problems. The rule provides a Basic Screening Tool that identifies risk factors that could lead to MSD hazards. If the risk factors on the job meet the levels of exposure in the Basic Screening Tool, then the job will have met the standard's Action Trigger.

4. What happens when the worker's job meets the standard's Action Trigger?

If the job meets the Action Trigger, the employer must implement the following program elements:

A. Management Leadership and Employee Participation: The employer must set up an MSD reporting and response system and an ergonomics program and provide supervisors with the responsibility and resources to run the program. The employer must also assure that policies encourage and do not discourage employee participation in the program, or the reporting of MSDs, MSD signs and symptoms, and MSD hazards.

Employees and their representatives must have ways to report MSDs, MSD signs and symptoms and MSD hazards in the workplace, and receive prompt responses to those reports. Employees must also be given the opportunity to participate in the development, implementation, and evaluation of the ergonomics program.

B. Job Hazard Analysis and Control: If a job meets the Action Trigger, the employer must conduct a job hazard analysis to determine whether MSD hazards exist in the job. If hazards are found, the employer must implement control measures to reduce the hazards. Employees must be involved in the identification and control of hazards.

C. Training: The employer must provide training to employees in jobs that meet the Action Trigger, their supervisors or team leaders and other employees involved in setting up and managing your ergonomics program.

D. MSD Management: Employees must be provided, at no cost, with prompt access to a Health Care Professional (HCP), evaluation and follow-up of an MSD incident, and any temporary work restrictions that the employer or the HCP determine to be necessary. Temporary work restrictions include limitations on the work activities of the employee in his or her current job, transfer of the employee to a temporary alternative duty job, or temporary removal from work.

E. Work Restriction Protection: Employers must provide Work Restriction Protection (WRP) to employees who receive temporary work restrictions. This means maintaining 100% of earnings and full benefits for employees who receive limitations on the work activities in their current job or transfer to a temporary alternative duty job, and 90% of earnings and full benefits to employees who are removed from work. WRP is good for 90 days, or until the employee is able to safely return to the job, or until an HCP determines that the employee is too disabled to ever return to the job, whichever comes first.

F. Second Opinion: The standard also contains a process permitting the employee to use his or her own HCP as well as the employer's HCP to determine whether work restrictions are required. A third HCP may be chosen by the employee and the employer if the first two disagree.

G. Program Evaluation: The employer must evaluate the ergonomics program to make sure it is effective. The employer must ask employees what they think of it, check to see if hazards are being addressed, and make any necessary changes.

H. Recordkeeping: Employers with 11 or more employees, including part-time employees, must keep written or electronic records of employee reports of MSDs, MSD signs and symptoms and MSD hazards, responses to such reports, job hazard analyses, hazard control measures, ergonomics program evaluations, and records of work restrictions and the HCP's written opinions. Employees and their representatives must be provided access to these records.

I. Dates: Employers must begin to distribute information, and receive and respond to employee reports by October 15, 2001. Employers must implement permanent controls by November 14, 2004 or two years following determination that a job meets the Action Trigger, whichever comes later. Initial controls must be implemented within 90 days after the employer determines that the job meets the Action Trigger. Other obligations are triggered by the employer's determination that the job has met the Action Trigger.

5. Flexibility features of the Ergonomics Program Standard:

A. Employers whose workers have experienced a few isolated MSDs may be able to use the ''Quick Fix'' option to reduce hazards and avoid implementing many parts of the program.

B. Employers who already have ergonomics programs may be able to ''grandfather'' existing programs.

C. The employer may discontinue parts of the program under certain conditions.

The full OSHA Ergonomics Standard can be found at *http://www.osha.gov.*

Appendix C to § 1910.900 [Reserved]

Appendix D to § 1910.900: Hazard Identification Tools

Appendix D to § 1910.900 contains hazard identification tools. This appendix consists of Appendix D–1, Ergonomics Job Hazard Analysis Tools, and Appendix D–2, VDT Workstation Checklist.

Appendix D–1 to § 1910.900: Ergonomics Job Hazard Analysis Tools (Mandatory)

Paragraph (j)(3)(i) of the OSHA Ergonomics Program Standard allows employers to use any of the job hazard analysis tools in this appendix, where appropriate to the risk factors in the job, to fulfill their obligations to conduct a job hazard analysis (paragraph (j)(3)) and reduce MSD hazards (paragraphs (k) and (m)). This mandatory appendix contains important information about these tools. A description of each of these tools is also contained in the Summary and Explanation of paragraph (j) in the preamble to this standard.

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JOB HAZARD ANALYSIS TOOLS

JOB HAZARD ANALYSIS TOOLS	SOURCE *	RISK FACTORS EVALUATED	AREAS OF BODY ADDRESSED	EXAMPLES OF JOBS TOOL APPLIES TO
Job Strain Index	"The Strain Index: A Proposed Method to Analyze Jobs For Risk of Distal Upper Extremity Disorders." Moore, J.S., and Garg, A, 1995; *AIHA Journal*, 56(5): 443–458. You may obtain a copy from: American Industrial Hygienists Association. 2700 Prosperity Ave Suite 250 Fairfax, VA 22031. Phone: (703) 849-8888 Web site: http://www.aiha.org/ See also: http://sg-www.satx.disa.mil/hscoemo/tools/strain.htm for a Web-based version of this tool.	• Repetition • Force • Awkward postures	• Hands • Wrists	• Small parts assembly • Inspecting • Meatpacking • Sewing • Packaging • Keyboarding • Data Processing • Jobs involving highly repetitive hand motions

JOB HAZARD ANALYSIS TOOLS

Revised NIOSH Lifting Equation	*Applications Manual for the Revised NIOSH Lifting Equation*, Waters, T.R., Putz-Anderson, V., Garg, A., National Institute for Occupational Safety and Health, January 1994 (DHHS, NIOSH Publication No. 94-110). You may obtain a copy from: U.S. Department of Commerce Technology Administration National Technical Information Service (NTIS) 5285 Port Royal Road Springfield, VA 22161 (NTIS Publication No. PB94-176930) Phone: (703) 487-4650 Web site: http://www.cdc.gov/niosh/ See also: http://www.industrialhygiene.com/calc/lift.html for a Web-based version of this tool.	• Repetition • Force • Awkward postures	• Lower back	• Package sorting, handling • Package delivery • Beverage delivery • Assembly work • Manual handling involving lifting weights >10 Lbs. • Production jobs involving forceful exertions • Stationary lifting